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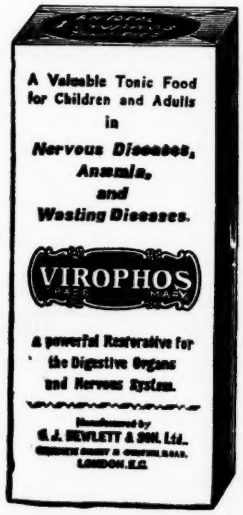
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ON AUTO-HAEMAGGLUTINATION:

A CONTRIBUTION TO THE PHYSIOLOGY AND PATHOLOGY OF THE BLOOD.

BY

C. J. BOND, C.M.G., F.R.C.S., HON. COLONEL A.M.S.,

VICE-CHAIRMAN OF THE MEDICAL CONSULTATIVE COUNCIL, MINISTRY OF HEALTH; HONORARY CONSULTING SURGEON TO THE LEICESTER ROYAL INFIRMARY; MEMBER OF THE MEDICAL RESEARCH COUNCIL.

PART I.—EXPERIMENTAL.

THE phenomena of haemagglutination employed by Landsteiner, Mosso, Hirschfeld, and others as a means of differentiating human individuals into different "blood groups" have hitherto been thought to possess only a biological or evolutionary significance.

It is the object of this communication to show that the facts concerning haemagglutination so far studied really form links in a chain of events in the life-history of the red corpuscle, and that they depend on certain biochemical and physical changes which take place in these cells in health and disease. Evidence will also be brought forward to show that the blood serum and the red cells contain haemagglutinins and haemagglutinogens respectively, which, although they resemble in some respects the specific haemagglutinins and haemagglutinogens already known, differ from these in being non-specific in character.

The Capacity of all Red Cells to form Haemagglutinogens.

Human red blood corpuscles and those of the different species of animals so far examined all seem capable of elaborating haemagglutinogen under certain conditions.

An examination of the red blood cells of more than fifty sheep shows that no auto-agglutination (that is, agglutination of the fresh red cells by the native serum) occurs in the blood of healthy animals examined soon after death. If, however, defibrinated sheep's blood be centrifuged or allowed to sediment, then after standing four to seven days at room temperature the red cells become agglutinable by their own serum, although they do not show mass agglutination while standing in the tube. This auto-agglutinability can be shown in the usual way by placing a drop of the clear supernatant serum on a slide and mixing with it a drop of the sedimented red cells. Under ordinary conditions well marked agglutination of the red cells takes place in a few minutes or within half an hour. Agglutination also takes place in red cells which have been previously washed in normal saline. Certain conditions favour this development of auto-agglutinability. Thus, if different samples of washed red cells from recently shed defibrinated sheep's blood be added to (1) normal saline containing 0.25 per cent. of gelatine, (2) normal saline, and (3) native sheep's serum which has been filtered through a porcelain filter candle, it will be found that the red cells in the gelatine solution develop auto-agglutinability after standing four or five days, and those in the saline solution in two or three days, whereas the cells which have stood in the native filtered serum develop well marked agglutinability with native serum in forty eight hours, while red cells which have stood in unfiltered serum only become agglutinable after six or seven days. The cells must be tested in each case by native serum previously pipetted off the defibrinated blood shortly after bleeding. In this way error due to the use of samples of serum of different agglutinin content is avoided. Cold delays the change. Thus defibrinated and sedimented sheep's blood, if kept in an ice chest, only shows commencing auto-agglutinability of the red cells after an interval of eight or nine days, though the change rapidly develops as soon as the blood is restored to room temperature.

These observations show, first, that washed red cells can develop agglutinability when standing in normal saline in the absence of blood serum; second, that the elaboration of agglutinogen is hastened by standing in filtered serum. Now, serum which has passed through a porcelain earth filter is deprived of all haemagglutinins. This fact will be considered later when discussing the specificity of the auto-agglutination reaction. The absence of agglutinins in the filtered serum culture medium in which the red cells stand has probably some bearing on the rapid development of agglutinability by those cells.

The Nature of the Auto-agglutination Reaction.

The question arises whether the agglutinability which occurs—slowly in washed red cells which have stood in native serum and more rapidly in cells which have stood in filtered serum—is a specific character; that is to say, whether the reaction which it produces resembles that which occurs when the freshly drawn red cells of one human individual are mixed with the serum of another individual belonging to a different "blood group."

Experiment shows that the increased agglutinability which sheep's red cells develop after standing some days in native serum is non-specific in character. Such red cells are not only agglutinated by native serum, they also agglutinate with the serum of other species of animals with which in the freshly drawn condition they give no reaction, thus: As the result of testing the mutual reaction of the blood of fifty individual sheep of different breeds with the blood of fifty individual guinea-pigs, it was found that, while the blood serum of the full-grown healthy sheep always agglutinates the red cells of the adult guinea-pig, the blood serum of the healthy adult guinea pig never agglutinates the fresh red cells of the adult healthy sheep. We find, however, that sheep's "old" red cells—that is, red cells which have stood for some days in native serum or in normal saline—are agglutinated by a guinea-pig's blood serum. They are also agglutinated by the serum of other individual sheep which in the freshly drawn state have no agglutinative effect upon them. They also agglutinate with the blood serum of certain human individuals with which when freshly drawn they are inactive. This means that the agglutinogen formed* by "old" sheep's red cells differs from the agglutinogen formed by the same red cells while fresh or immediately after withdrawal, inasmuch as the latter only responds to certain agglutinins while the former responds to all.

There is, however, a close association between the non-specific and the specific type of reaction, for the capacity of the red cells to undergo *specific* agglutination is also increased by age. Thus cells which in the fresh state give no reaction, or only a partial reaction, with certain human and animal blood serums, when allowed to stand in native serum for some days give a reaction, or a more complete reaction, in proportion to their agglutinophil affinity for those particular blood serums in the fresh condition. This may be due to the fact that a non-specific auto-agglutinability has been superadded to the specific agglutinability previously possessed by these cells.

This increase in agglutinability in old cells has a practical application. It emphasizes the desirability for using freshly drawn red cells in testing for blood groups, and it has a bearing on the length of time for which red cells can be stored with safety for transfusion purposes.

The *serum saturation method* provides another way in which we can demonstrate the fact that the non-specific differs from the specific reaction.

If washed red cells which have stood for some days in native serum, and have thereby formed agglutinogen, are mixed with a small volume of native serum, saturation of the non-specific agglutinin occurs which renders the serum incapable of agglutinating a second dose of the same red cells. Serum so saturated, however, retains unimpaired its power of agglutinating fresh red cells from other individuals or from other species of animals with which it has specific affinities. This can be shown either by saturating the serum *en masse* by the appropriate red cells in a tube, or, more strikingly, by using a few drops of the serum on a slide. If a suspension of old washed sheep's red cells is mixed with a drop of this native serum the non-specific auto-agglutinin in the serum is saturated. After complete agglutination has taken place a drop of the clear saturated serum is pipetted off and placed on another part of the slide; if this no longer agglutinates a second dose of the same red cells saturation is complete. A second drop of the same saturated serum is now mixed with fresh human red cells or those of an animal

* In thus speaking of haemagglutination as an interaction between some substance *formed by* the red cells and a constituent in the serum, it may be that we are prejudging the real nature of the reaction. It is quite possible, as Dr. Dale has suggested to me, that the acquirement of agglutinability by the red cells may be really due to the *loss of* some constituent by those cells. The red cells by losing some protective substance may more readily absorb and become more easily acted on by the haemagglutinin present in the blood serum.

known to be specifically agglutinated by the same serum Prompt agglutination occurs; the specific agglutinin present in the serum has not been saturated by the non-specific agglutinogen present in the old native sheep's red cells used to saturate the serum.

With regard to the reverse condition—namely, the neutralization of non-specific agglutinin by saturation with specific agglutinogen—the results obtained are not quite so harmonious.

If sheep's blood serum is saturated with red cells of certain human individuals known to be agglutinable by sheep's serum, serum so treated, although no longer capable of agglutinating a second dose of the same human red cells, retains its capacity to agglutinate washed old sheep's red cells.

On the other hand, if a human serum known to have developed auto-agglutinative capacity as the result of disease be saturated with specific agglutinogen from the washed red cells from another human individual or by guinea-pig's red cells the auto-agglutinative power of the saturated serum seems to be impaired or destroyed.

In human blood apparently the neutralization of the specific agglutinins present in the serum also brings about the neutralization of the weaker and more evanescent auto-agglutinin. It would seem, therefore, that there is some difference in potency or neutralizability between human and sheep's auto-agglutinin, and further investigation is necessary to clear up this point. It seems to be true, however, speaking generally, that while saturation of the stronger specific agglutinins by the specific agglutinogens saturates the weaker non-specific agglutinin, saturation on the other hand of the weaker non-specific agglutinin by non-specific agglutinogen does not always neutralize the specific agglutinins normally present in the serum.

These observations seem to prove that the auto-agglutinogen formed by red cells which have stood in native serum is not identical with the specific agglutinogens which the same red cells contain in the freshly drawn state, and the same thing apparently applies also to the relationship between the non-specific auto-agglutinin and the specific hetero-agglutinins present in the serum.

Haemagglutinogens (like haemagglutinins) apparently form a graded series. Starting with the basal non-specific agglutinogen A, which combines with the non-specific agglutinin A present in every serum, human and animal so far tested, we pass to the specific agglutinogens B, C, D, etc., each different in composition and each capable of combining with its corresponding agglutinin.

The non-specific auto-agglutinogen A, unlike the specific agglutinogens, is not found in the freshly drawn healthy red cells. This is shown by the fact that both intact and fragmented freshly drawn red cells are not agglutinated by their own native serum.

The bruising of the stroma and the rupture of the enveloping membrane of the fresh cells does not cause the liberation of any preformed agglutinogen. The lapse of time and certain degenerative changes in the corpuscles seem to be necessary before this agglutinogen is formed by the cell, and before it can permeate the outer membrane and appear on the surface. If red cells, however, which have stood in native serum be ruptured by grinding with a pestle and mortar, then the contained agglutinogen is liberated more quickly than by the intact cells and the auto-agglutinative reaction is considerably hastened. On the other hand, non-specific auto-agglutinin does exist ready formed in the fresh serums. All old red cells which have become agglutinable by standing and fresh red cells which have developed auto-agglutinability as the result of disease are agglutinated by the non-specific agglutinin present in all varieties of freshly drawn serum so far examined. This grading of specific haemagglutinability and the fact that specific agglutinogens are connected with non-specific agglutinogens is important in relation to recently established knowledge concerning the relation of specific to non-specific immunity reactions in general. It would seem that while the specific agglutinogens can permeate the stroma envelope of the red cell immediately after the blood is shed, the non-specific agglutinogens now described only reach the surface of the corpuscle after it has stood for some days in blood serum or other medium and after its envelope has become permeable to them. The specific agglutinogens of biological interest seem to be capable of rapid mobilization, while the non-specific agglutinogens which are produced during the reaction of the organism to disease are mobilized more slowly. Whether any agglutinogens or agglutinins are present in the blood in the circulation during life and before the blood plasma has become changed into blood serum by coagulation is a question of fundamental importance which will be discussed later in Part II.

On the way in which Agglutinogens are formed by the Red Cells.

Experiments have been carried out to ascertain whether agglutinogen is formed on the surface only, or whether it is present also in the interior of the red cells. If sheep's red cells are washed in saline, then ground with a pestle and mortar, and the fragmented cells again washed several times, the haemoglobin constituent is removed, and on centrifuging the broken cells form a yellowish-white sticky sediment. A suspension in saline of these washed cell fragments agglutinates when mixed with native serum. This shows that the agglutinogen constituent is not removed with the haemoglobin by washing. It also shows that the cell fragments themselves contain agglutinogen, and that this substance is not merely held in solution within the corpuscle, like water in a bag, and liberated when the enveloping membrane becomes permeable by it, or when it is ruptured by injury.

Attempts have also been made to obtain haemagglutinogen in the free state. Saline solution previously used for washing agglutinable red cells was tested for the presence of agglutinogen in two ways: (*a*) Fresh red cells not yet agglutinable were suspended in the fluid, and these were tested later with an agglutinating serum. (*b*) The saline fluid supposed to contain agglutinogen was added in equal volume to an agglutinating serum in which any reduction of agglutinative capacity would indicate some neutralization of free agglutinin in the serum so treated.

A considerable number of trials were made by both methods with various varieties of red cells, human and animal. No constant or marked evidence of the presence in such saline solution of free agglutinogen capable of rendering red cells agglutinable or of saturating agglutinin in serum has been obtained. In two or three cases some neutralization of the agglutinin in the serum occurred; the inhibitory results, however, were not constant and may have been due to the presence of haemolysins which destroyed the red cells before the agglutination reaction could take place.

Further evidence that agglutinogen can only exist in combination with the stroma of the red cell is found in the fact that agglutinable red cells can be washed six or eight times in normal saline without losing their surface agglutinogen. Moreover, as we have seen, fragmentation of the corpuscles followed by washing fails to remove it.

While, however, agglutinogen cannot be obtained in the free state, the linkage between agglutinogen and agglutinin can be separated by repeated washing. Red cells which have been auto-agglutinated by native serum can be separated by washing and enabled to reagglutinate with a fresh dose of the same serum. This also applies, though to a less extent, to the specific reaction.

Certain Conditions which affect Agglutinogen Formation.

We have already found that filtered serum forms a better culture medium for the elaboration of agglutinogen than normal serum.

If this filtered serum is slightly diluted with normal saline fluid still better results are obtained. The addition of gelatine 0.25 per cent. to the saline solution delays agglutinogen formation. In defibrinated sheep's blood the red cells from the lower portion of the tube show more agglutinability when mixed with native serum than cells taken from the upper layer. This may depend on the fact that the agglutinogen in the cells of the upper layer is partly neutralized by the agglutinin of the serum with which they come in freer contact, or it may be due to a readier access to the oxygen of the air in this situation.

The Effect of Oxygenation on Agglutinogen Formation.

Two samples of defibrinated sheep's blood were taken. Sample (*a*) was sealed in a tube; sample (*b*) was placed in an open tube and repeatedly oxygenated either by agitation or by bubbling air through the blood. After several

days both samples were sedimented and examined for auto-agglutinability. No great difference was detected in the two samples. In general the red cells from the oxygenated blood became agglutinable a day or two before those in the sealed tube.

The Effect of Heat.

The non-specific and the specific agglutinins resemble each other in being thermostable. If sheep's serum capable of auto-agglutinating native washed red cells and of specifically agglutinating human red cells be subjected to a temperature of 56° C. for half an hour it retains its capacity to agglutinate both kinds of red cells.

The Removal of Agglutinins from Blood Serum by Filtration through Porcelain.

We have already seen that while agglutinogens are only found in combination with the red cells, agglutinins, on the other hand, exist in the serum in the free state. If freshly drawn sheep's serum be filtered through a porcelain earth filter candle under diminished atmospheric pressure, a pale clear fluid of low specific gravity is obtained free from specific and non-specific agglutinins. Such filtered serum has no agglutinative action on fresh red cells which a control sample rapidly agglutinates, or on old native red cells in which the control sample produces auto-agglutination. It is a point of interest that while filter candles of a certain fineness of porosity block the passage of all haem-agglutinins, those of a slightly more porous character let some through. The size of the agglutinin aggregate would seem to correspond, therefore, to the diameter of the pores of a moderately fine filter candle. An attempt was made by using candles of different degrees of porosity to ascertain whether any difference in filtrability—that is, in the size of the aggregrate—occurred between the non-specific and the specific form. As far as can be ascertained, however, both seem to pass with equal readiness through candles of the same fineness of pore.

It may be that the excellence of filtered native serum as a medium for the formation of agglutinogen by red cells depends on the fact that filtered serum contains no haem-agglutinin, consequently the agglutinogen is not neutralized as soon as formed.

Conclusion.

The subject of auto-haemagglutination in disease will be considered in Part II. It is, however, desirable to sum up the conclusion established in regard to this (*in vitro*) part of the inquiry.

In the first place the phenomena of haemagglutination have been shown to possess a physiological as well as a biological significance. All red blood corpuscles are capable of forming haemagglutinogen under certain conditions.

Agglutinogen, like agglutinin, exists in the non-specific form, agglutinogen A, and in a graded series of specific forms, agglutinogen B, C, D, etc. The specific and the non-specific agglutinogens (like the corresponding agglutinins) although allied, are not identical in composition or character.

Agglutinogen has so far only been found in combination with or attached to the surface or stroma of the red cells. It apparently does not exist in the serum in the free or uncombined state. The specific and non-specific agglutinins, on the other hand, are present in the serum in the free state, and both kinds are removed by filtering the serum through a porcelain filter.

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SOME POINTS IN MIDWIFERY PRACTICE.

A PAPER READ BEFORE THE CAMBRIDGE MEDICAL SOCIETY.

BY

W. J. YOUNG, L.R.C.P., M.R.C.S.,

PRESIDENT.

THE doctor probably more than any man, and perhaps the accoucheur most of all, desires that the generation which succeeds him shall emulate his virtues, improve on his methods and avoid his errors, a sentiment expressed in the well-worn tag of the Sophoclean Ajax,

ὦ παῖ, γένοιο πατρὸς εὐγενέστερος.

When we have become old enough to look back, when we have grown candid enough to admit, even to ourselves, our defects and our failures, we can still desire perfection; hence it seemed to me, since in this important branch of our profession so much can be done for the good of the patient, that a profitable discussion might well result from a paper on some points in midwifery practice.

During Pregnancy.

Taking the first of the three great natural divisions of our subject, we will look at a few matters in relation to pregnancy concerning which we are often called on to give advice—what to do and to avoid, and so forth. My custom is to tell the woman to lead a normal active life in all respects, avoiding three things—shock, strain, and fatigue. I advise her also to turn a deaf ear to the counsels of old women of both sexes, and of certain books whose chief characteristics seem to be sticky sentiment and sloppy moralizing.

In the absence of signs or symptoms, it is probably needless to trouble the prospective mother till the expiry of seven months, when external pelvimetry should be done and abdominal examination made to determine if there is likely to be plenty of room for the head. If there seems any ground for fear, the examination should be repeated every week and labour induced if and when indicated. By this means we can avoid what may be fairly regarded as a discredit to our art—the bad forceps case with head at or above the brim. I fear that perhaps too many of us can look back on such cases with mingled feelings. The woman should also be instructed to report any departure from her normal health, and systematic repeated examinations of the urine should be made if there is previous history of renal or toxaemic trouble, or any sign that all is not well.

In preparation for the confinement, I think that the routine administration of quinine, gr. 1 twice a day for a month before the event, with or without digitalis, acts as a good uterine tonic. I shall refer to this again.

I have always opposed, and I hope always to oppose, the practice of midwifery by midwives, sanctioned though it is by the hoariest antiquity, supported by widespread prejudice and ignorance, and backed by the Legislature. When we consider how much the medical man can do—and, indeed, ought to do—to take his patient through her confinement expeditiously, safely, with a minimum of pain, distress of mind, discomfort, and injury, we cannot view with indifference the denial of these advantages to so large a proportion of mothers. True, one sometimes hears a doctor say that he hates this branch of his work, and we all know how very awkward its incidence can be, but such things are not good arguments for the employment of midwives. What is wanted is doctors who love their work.

A word on the thorny question of the induction of labour. My view is that this *dernier ressort* should not be postponed too long. If the patient is wasted and wasting, if vomiting is severe and persistent in spite of treatment, if albuminuria and toxaemia are present, or even an obscure condition of marasmus, we ought not to wait on and on in the hope for a living child when every day diminishes the mother's chances. My mind goes back to such a case in which induction was postponed; the woman had a spontaneous labour at seven months, the child dying in thirty-six hours, and the mother some hours later. Frankly, I am not in love with the dictum of Pinard concerning the right of the fetus to its life. Hydrops amnii

should be watched literally from day to day, and relief given before symptoms become too grave, if Nature does not forestall us.

For the vomiting of pregnancy I am old-fashioned enough to think highly of iodine, of bismuth, and of ingluvin, but from what we were told at the last annual meeting of the British Medical Association, I suppose that one should resort early to treatment by psychotherapy for this condition.

During Labour.

As to the second division, labour itself, whilst it is true that meddlesome midwifery is bad, the doctor who "never interferes, but leaves it all to Nature," may attend confinements; he does not practise midwifery.

We all know but too well that the course of labour varies within extremely wide limits, even in the same woman at different times. Probably most of us can recall such cases as that of a quite young woman whose first labour gave her over three days of constant and severe pain, and of the woman of 36 whose big first baby was born after only one hour and a half. On the question of the influence of the age of the mother, my view—the outcome of the experience of myself and of others—is that in the great majority of cases of primiparae it makes extremely little difference, and that the talk in the books about "elderly primiparae—that is, over 30," is largely nonsense.

For irregular or fruitless pains in the first stage I believe quinine bisulphate gr. vi in one dose to be useful, as is also chloral, and particularly morphine and scopolamine. This latter combination is a sheet anchor in those trying cases of first stage in which the pains are very severe with "nothing doing"—the so-called "disturbed polarity"—which sometimes tend to go on for days, wearing out the strength of the woman and the patience of the doctor. The dose, from $\frac{1}{4}$ to $\frac{1}{3}$ gr. of morphine, can be repeated as often as indicated, but it is very seldom that one need give more than two doses, generally in from four to eight hours after the first dose one finds the cervix dilated and the second stage progressing normally; not infrequently the child is born before the effects are passed off, much to the mother's gratification and to the credit of the accoucheur.

Whilst on this part of our subject I ought to say a word about twilight sleep—blessed phrase, worthy companion to "Mesopotamia" and "profound toxaemia"! I was fortunate in attending a discussion at March on this subject some time ago, the outcome of which was a general agreement that for the great bulk of cases it is neither necessary nor desirable; that its overloaded technique is either frivolous or puts it largely out of court for general practice; and that most, if not all, of its real benefits can be secured without the maintenance of the full state of amnesia. My own assurance to patients who ask me about twilight sleep is that they shall not be allowed to suffer unduly, a promise I do my best to fulfil; more than this no woman needs and no sensible woman wants.

Of complications of the first stage perhaps the chief in importance, from the point of view of discussion, is placenta praevia. Many years ago I stated my conviction, to which I still adhere, that in this formidable condition the interests of mother and child are so completely opposed that the soundest practice is to make no attempt to secure a living child unless the placenta is fairly well out of the way, the os dilated or easily dilatable, and the bleeding slight. Our procedure will largely depend on the condition of the os; if it dilates fairly readily to the fingers—and with all respect to the various bags and dilators, I still think that fingers were made before them—the best treatment is to separate the membranes and the placenta as far as one can reach with the finger, dilate up to four or five fingers, bring down a foot, pull the breech well down, give ergot or pituitary or nothing, and await—it is seldom or never long—the delivery. On the other hand, if the cervix is unyielding and the haemorrhage such as to cause anxiety, I believe that the proper treatment is Caesarean section. I think that resort to this operation as a routine treatment for the condition of placenta praevia is quite unjustified. Plugging the vagina for this complication I have never done, and do not think that I ever shall.

The course of the second stage and its treatment are to a great extent dominated by the presentation. It is said of Péan that he was so enamoured of his discovery of differential percussion that he could percuss out a tapeworm in the small intestine; after reading about abdominal palpation I am quite willing to believe that some of those to whom the vagina is a *via sacra* are able to diagnose all presentations, even the most complex, yea, even to tell the sex of the child. But to most of us this Parnassus is unscalable; not infrequently also we have to confess failure with the classic two fingers. A story is told of a French professor who, demonstrating what he said was a face case, withdrew his finger from the mouth and held it up covered with meconium! All doubts about head presentations can be set at rest by introducing enough of the hand to find the ear and to determine exactly how it lies; the condition of the os can be investigated at the same time, and the state of the pelvis. Not long ago I had an occipito-posterior case in which a hand, a foot, and the funis were also presenting; I think that such a case might possibly tax the skill of the palpating expert. I do not wish to decry abdominal palpation, but only to suggest that it is not everything.

The occiput in posterior presentations should invariably be rotated forwards unless Nature terminates the labour speedily, and it should be a maxim with every accoucheur never to put on forceps in these cases without first rotating; it makes all the difference.

Face cases at or above the brim should be either turned or rectified. For myself, I much prefer rectification, as then one knows exactly what there is to deal with. The great point in attempting rectification is first of all to rotate the occiput into the left inguinal region, if it is not already there; this manœuvre, which I had the honour to use and to describe in 1911, is now included in the new edition of a leading textbook. With the anaesthetized patient on her back across the bed, the ulnar border of the right fist pressing down the occiput and the left hand in the vagina pressing up the face, rectification is easily and speedily accomplished. Full flexion of the head can then be secured and the forceps applied.

With regard to version for other conditions than placenta praevia, if I am in any doubt about the amount of room in the pelvis, I prefer to deal with the head first rather than last, and I do not regard podalic version as good practice in cases of small round pelvis.

It is, I think, much to be regretted that so many practitioners still use the ordinary forceps instead of the axis traction instrument. I have already remarked that the high forceps case, particularly in primiparae, is a discredit to us which should be avoided by the induction of labour directly it becomes difficult to press down the head into the pelvis. The funnel-shaped pelvis will, however, still lie in wait for us and sometimes cause very great difficulty in delivery, even to the death of the child. If it should so happen that we have to apply forceps at the brim, then we should make sure that the head is in the optimum position, adjust the forceps as accurately as possible to the sides of the head—the "lateral meridian" of the French school—make use of the advantage of Walcher's position, and pull in the axis of the pelvis. If, in spite of all our skill, we fail to deliver, the treatment is craniotomy; I consider Caesarean section in such cases improper practice.

I take for granted that chloroform is not spared whenever indicated in labour. I always use the inhaler of Roth Dräger, which is again obtainable in this country. It ensures a supply of fresh air at every breath, the amount of chloroform is easily controlled, and the patient can hold the inhaler herself. A whiff of chloroform after the dose of scopolamine-morphine helps its action very materially.

No "point" in midwifery is of more vital concern or of more perennial interest than that of *post-partum* haemorrhage, in which, for convenience, we may include bleeding in the third stage. We all know the many devices for dealing with this enemy, from compressing the aorta to pulling down and twisting the uterus with vulsella. But surely the best treatment is to prevent it if possible, and I believe that much in this direction can be done by giving quinine and digitalis, and also calcium chloride or lactate, during the last month; it is also of the greatest importance that labour should not be allowed to drag on too long in the second stage. I generally give an intramuscular injection of calcium chloride before delivery, and one of pituitary extract directly the head is born; sugar also is probably very useful. One of my patients, who had nearly died in her twelfth and thirteenth labours, came

quickly and safely through her fourteenth and fifteenth under treatment on these lines; labour was terminated by the forceps directly dilatation was sufficient, and ergot was given twenty minutes before delivery.

But, alas! it has to be confessed that there seem to be bloods which fail to respond to the clotting influence of calcium, and uteri which laugh at pituitary and at ergot, and these will occasionally give us a crowded hour of mouth-drying anxiety. Fortunately, there is probably no uterine haemorrhage that cannot be controlled by bimanual compression, which cannot be arrested by the hot douche. One curious condition ought to be noted here, which I have observed several times. The uterus feels hard, and is obviously well contracted, and yet the bleeding goes on. Vaginal examination shows, however, that the lowest part of the uterus is still quite flabby, and sometimes distended with clot. If the placenta has had some attachment to this area bleeding takes place, and the usual stimulants seem powerless to stop it; it ceases at once under the hot douche.

I am still an obdurate sceptic, despite the eloquence of our Regius, in regard to the educational value of the M.B. thesis. If, however, we still must suffer such things, then I would modestly suggest the investigation of the reaction of different bloods or blood groups to calcium chloride, with a view to placing our clinical use of this sometimes potent agent on a sound and scientific basis, and to determining the proper dosage. To Dr. Grove is due the credit of introducing it for the treatment of haemorrhages, but I certainly think his dose of 1 grain too small. I usually give 2 grains, dissolved—I keep the solution ready made—in 20 minims of 2 per cent. carbolic lotion. Another subject for investigation is the factors which in some cases seem to inhibit the action of pituitary extract on the uterus.

A further word about pituitary must be added before quitting this part of our subject. Practitioners of much greater experience than myself agree that it is one of our most powerful weapons, terminating in a few minutes what would often otherwise be interminable cases in multiparae, and preventing or arresting haemorrhage. It acts at once or not at all, and I do not believe the tales about it causing rupture of the uterus an hour after injection; the fact of rupture occurring then would to my mind prove that the rupture was not due to the drug. There were brave men before Agamemnon, and there were ruptured uteri before pituitary extract. Of course, if a practitioner asks for trouble by giving it in obstructed labour he has only himself to thank, but I decline to believe that there is any risk at all in giving this drug to multiparae in cases where the head is in the pelvis and there is room for easy natural delivery.

Our third division is concerned with puerperal conditions and their treatment. The aseptic accoucheur, if any such there be in actual existence, gowned and gloved and gas-masked, who shaves the vulva and gives a bath of picric acid, will naturally douche the uterus in all cases and pursue a consonant post-operative routine; the ordinary general practitioner will, like Gallio, care for none of these things, and his patients will get along equally well. Cases of sepsis will occur, just as cases of embolism and white leg and mammitis and puerperal insanity, in which one will not be able to trace a cause, in which also there may have been no vaginal or other interference and no ascertainable history of exposure to infection. In view of this fact, the pursuit of a technique which experience has shown to be adequate is enough. As a last word on this I would like to ask two questions: "Ought retained membranes always to be removed at once, or may they be left awhile?" also, "Should a torn cervix be sutured?"

Two other deadly complications of the early puerperium may be mentioned. The first is reactionary, or late *post-partum* haemorrhage. A friend of mine died of it some years ago, and I have had one narrow shave in my own practice. One stays with the patient a reasonable time, all seems well, and then after an hour or two one is urgently summoned, to find the uterus full of clot, the woman blanched, bleeding, and in pain. Fortunately this trouble is rare, or our practice would be a nightmare.

The other trouble is *post-partum* vomiting, of which I have had a fatal case. I suppose that it must be due to some form of toxaemia where it is not hysterical. It certainly constitutes a very formidable complication, and is very refractory to treatment.

Though there of course remain a large number of points of great interest and importance, I think that I have gone on quite long enough, so will close without flourish or peroration.

OBSERVATIONS ON CASES OF RICKETS IN AN OUT-PATIENT DEPARTMENT.

BY

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At the present time, in spite of the large amount of attention which has been focussed upon the etiology of rickets, there appears to be no general agreement as to its cause. Mellanby believes that the ultimate factor determining the occurrence of rickets in puppies of a susceptible age is the absence in the diet of a sufficient quantity of "anti-rachitic factor"[1]—a substance which has been held to be identical with fat-soluble A.[2] Yet Noël Paton and his co-workers, who, in the course of their investigations on rickets, have carried out somewhat similar experiments in dogs, consider that "some other factor than diet is the prime cause of rickets,"[3] and that rickets "is directly correlated with overcrowding and confinement in insanitary houses."[4] Hess, who, like most clinical workers, holds that rickets "is primarily a dietetic disorder," believes that cod-liver oil "is almost a specific" as a prophylactic or curative remedy, but at the same time holds that fat-soluble A is only one among several factors concerned in the pathogenesis of rickets,[5] and that probably "the danger to infants of a diet deficient in fat-soluble vitamine is slight, provided it includes sufficient calories and is otherwise complete."[6]

Bull, commenting on his clinical and experimental investigations on rickets among foxhound puppies, concludes that "although the faulty nature of the food was closely associated with the production of the disease, it has been shown that it was not capable of producing the disease when other conditions were altered," and that rickets is probably "due to a reaction on the part of the organism to an infection or chronic intoxication."[7] Erdheim (working in Vienna during the time of shortage and of high prices, when very many among the population were under-nourished) examined pathologically a large number of caged rats which had spontaneously developed rickets at this time. He gives in his published report no particulars of the diet of these animals, but he shows a close relationship to exist between hypertrophic changes in the parathyroids and the presence of rachitic changes in the rats' bones—those rats having rickets had enlarged parathyroids with microscopic appearances indicative of hyperactivity of the glands.[8] Erdheim also removed the parathyroids in rats, and bone changes similar to rickets followed this operation. This apparent contradiction he explains on the theory that the parathyroids in some way control calcium metabolism, and that in spontaneous rickets the hypertrophy indicates an effort at compensation on the part of the organism. Erdheim's observations are of considerable interest, in view of the following facts: (*a*) The occurrence of a condition resembling tetany as a result of the experimental removal of the parathyroids;[9] (*b*) the extremely frequent association of tetany with rickets and artificial feeding in children; and (*c*) the fact, as stated for instance by Holt, that in children "the active symptoms of tetany may be controlled by calcium,"[10] the metabolism of which is disturbed in rickets. These facts would suggest that the hypertrophy of the parathyroids may, as Erdheim suggests, be a protective measure against some common cause giving rise to abnormal calcium metabolism, to an increase of guanidin in the blood, and in some way to both rickets and tetany.

Guanidin, a product of decomposition of protein, is, according to Noël Paton, the chemical substance which gives rise to the symptoms of tetany.[11] Morpurgo[12] isolated from the organs of white rats which suffered from a spontaneous outbreak of osteomalacia in his laboratory a Gram-negative diplococcus, and succeeded in producing the disease in hundreds of other rats by subcutaneous inoculation of either the pure culture or the organs of animals containing the diplococcus. When adult animals

were the subject of experiment a disease resembling osteomalacia was produced, but with newborn rats the effects were closely similar to the changes observed in rickets in children. Schmorl, who examined Morpurgo's specimens, agrees that the histological changes are identical with those of rickets.

Looser[13] is of opinion that rickets and osteomalacia are one disease, and supports his views by the results of clinical, radiographic, and pathological examinations of cases coming under his observation during a period of many years. He believes that the cause is most probably an infective one.

The papers heretofore quoted are all recent publications, but Bland-Sutton, working on animals at the Zoological Gardens, described over forty-five years ago how gerbillis in captivity developed a condition either of rickets or of osteomalacia according to their age, and concluded that the causes of these two conditions are one and the same.[14] He showed, too, how monkeys frequently developed rickets, and he considers the "rickets of maturity" in monkeys comparable with osteomalacia.[15] His experiments on lion cubs at the Zoo, and the prevention among them of rickets by means of dietetic measures,[16] are well known, and his observations indicate that both osteomalacia and rickets are mainly dietetic diseases, and can be prevented by an adequate diet.

Thus it will be seen that there are at present in our possession no facts conclusively proving the cause or causes of rickets, though it would appear to be at least in part a dietetic disease, and that its occurrence in rats is associated with changes in the parathyroid glands.

Investigation of 51 Rachitic Out-patients.

In 1920 I carried out some clinical investigations on rickets among children attending the out-patient department of the Queen's Hospital for Children and the infant clinic at University College Hospital. In all I collected 51 cases of rickets in children between 5 months and 4 years of age, of whom 46 were under 3 years of age. I limited myself to cases in which the condition was, so far as I could tell, still active. The majority were heretofore untreated, and a few were cases growing worse, in spite of previous treatment.

I began with the belief that rickets was mainly, perhaps entirely, a dietetic disease, and it seemed reasonable to start from the hypothesis that it is due, in part at least, to a want of fat-soluble A and to investigate the cases from this point of view.

My results go to prove the impossibility of obtaining data of sufficient accuracy from out-patient work to give any conclusive results. There was a very wide margin of error in the histories given me; irregular attendances, intercurrent diseases, and radical changes made by the mother in the food (which, perhaps, in spite of careful questioning, I only discovered by chance weeks later), also invalidated very many of my records. These sources of error point to the absolute necessity that an investigation in clinical work undertaken with a view to elucidating the cause of a supposed dietetic disorder should be institutional. Nevertheless, some points of interest appear worth recording.

The Diet of Rachitic Cases.

The history revealed that in 35 out of 51 rachitic children (that is, nearly 69 per cent.) artificial feeding was begun before six months of age. Allowing for the uncertainties of the history, there seems no doubt that in at least 29 of these 35 cases the diet would have been markedly deficient in fat, as compared with human milk, for a period of anything between one and a half to seven and a half months before the age of 8 months. The degree of deficiency it was quite impossible to estimate. But, as against this, it must of course be remembered that, unless fed on a dried milk (which is very usually given in a strength roughly equivalent to undiluted cow's milk), the vast majority of artificially-fed infants of the poorer classes in London receive a diet containing a considerably smaller percentage of fat than human milk, and I think there can be no question that the majority of these do not develop rickets.

Twenty-two of the 35 bottle-fed children, and probably a considerably larger number, received for a period of six weeks or more before the age of 6 months a food containing a large percentage of carbohydrate—for example, sweetened condensed milk, or a food with added starch. The older children on mixed diets appeared to receive a large quantity of carbohydrate food, but I did not come to any conclusion as to whether it was more than that consumed by the majority of children of corresponding age of the same social class.

In at least two children under nine months of age rickets developed on a diet of breast-milk only, and it is interesting to note the particulars obtained of the diet of one of the two mothers in question (the husband was a casual labourer at the docks, and sometimes only able to get one day's work in the week):

Breakfast: A cup of tea with milk.
Dinner: Potatoes daily, suet or batter pudding (about four days a week), or meat or fish (about three days a week), greens once or twice in the week, bread sometimes.
Tea or Supper: Generally none, occasionally bread and margarine.

It seems that under these circumstances the milk secreted might well have been poor in quality (*cf.* Dalyell, BRITISH MEDICAL JOURNAL, July 31st, 1920). Unfortunately it was not possible to obtain a specimen for examination. In the second case I was not able to get details of the mother's diet.

A communication made to me by a medical woman working in India has some bearing on the association of rickets with diet. She informed me that, except among the "mission" children, she rarely saw a case of rickets in a native. Among the "mission" children it was not uncommon. She attributed this to the fact that many of these children were bottle-fed, whereas a child reared on the bottle was comparatively rare among the general population.

Antiscorbutic in the Diet.

I was interested in the question of whether an antiscorbutic deficiency could play any part in the production of rickets. It is obvious that if fat-soluble A is often deficient in an infant's food as a result, for instance, of dilution, the proportion of the less stable antiscorbutic vitamine may be correspondingly even further reduced in the same food, and even fresh cow's milk is not rich in antiscorbutic. Hess and Unger calculate that an infant probably requires the antiscorbutic equivalent of 1 pint of fresh cow's milk per day.[17] It was impossible to ascertain from the data available whether there was any antiscorbutic deficiency in the diets as a whole. However, in view of Hess's suggestion that a condition of subacute scurvy is not infrequently mistaken for rickets,[18] it is of some interest to note the following two cases which were sent to me as rickets: Rose M., aged 9 months, had been fed on proprietary foods since 2 weeks old, but had had "an orange quarter to suck twice a day since 6 months old." She was brought to the hospital because "she screamed when the ankles were touched." When seen there was beading of the ribs, and enlargement of the epiphyses of the wrists and ankles, the limbs appeared very tender, the gums were swollen and bluish-red round the erupted teeth, and the capillary resistance test of Hess and Unger[19] was strongly positive, a test which, though probably not pathognomonic, yet I think clinches the diagnosis of scurvy in this case. Unfortunately this child was seen once only.

The directions given by these authors for the test are briefly as follows: The blood-pressure band of the sphygmomanometer—Tycos apparatus was used by them—is put round the arm and the pressure raised and kept at, say, 90 mm. of mercury for three minutes. The object is to obliterate the flow of blood and so produce cyanosis without obliterating the pulse. They claim that, after removal of the band, infantile scurvy cases show very numerous points of bleeding, normal cases none, or perhaps one or two—petechiae just below the pressure band are to be ignored. Obviously there is more probability of obtaining petechial haemorrhages, other conditions being equal, in a child which has raised its blood pressure by crying than in one which is quiet—a point, I think, to be borne in mind in doubtful cases.

The second child, Bertram S., aged 1 year 3½ months, would have appeared from his history to be receiving a sufficiency of antiscorbutic, but the teeth were decayed, the mouth in a condition of stomatitis, the capillary resistance test positive, and in sixteen weeks he had lost ½ lb. in weight. Therefore he was put on large doses of orange juice (about ʒiij daily), besides local treatment for the mouth, and he rapidly improved, and gained an average

of over 8 oz. a week for five weeks—facts which suggest that the condition may have been subacute scurvy. This child also showed beading of the ribs and enlargement of the epiphyses at the wrists as well as tuberculous dactylitis. I presume that clinically the enlargement of the epiphyses in both these cases would be held to justify a diagnosis of rickets whatever other conditions were also present.

Result of Treatment with Single Additions to the Diet.

I pass now to the results of treatment. I divided the cases as I saw them into five groups, endeavouring to keep all the groups as equal as possible with regard to age and types of case composing them. To the previous diet of the children of each of these groups I made one of the following additions:

1. An animal fat presumably rich in fat-soluble A, namely, cod-liver oil ʒ ij daily.
2. An animal fat also presumably rich in fat-soluble A, namely, butter ʒ ij daily.
3. An animal fat *plus* a substance rich in antiscorbutic, namely, butter ʒ ij *plus* orange juice ʒ iij daily.
4. An animal fat *plus* a substance rich in water-soluble B, namely, butter ʒ ij *plus* marmite ʒ ss daily.
5. A vegetable oil presumably much lower in fat-soluble A than the foregoing animal fats—namely, cottonseed oil ʒ ij daily.

The fats were given as emulsions, and all the substances, including the orange juice, were dispensed at the hospital. Of course any outstanding symptoms, such as constipation, diarrhoea, or cough, had to be treated, but I avoided, as far as possible, giving the mother any directions as to feeding or hygiene in the home, with a view to keeping those factors unaltered. The results were disappointing. Owing to the small number of cases which attended with any regularity I have grouped under the one head of "butter" in the following table all the cases receiving butter, butter and orange juice, or butter and marmite.

Period March to July, 1920. Results of Treatment.

	Addition to Diet.		
	Butter ʒ ij daily.	Cod-liver oil ʒ ij daily.	Cottonseed oil ʒ ij daily.
Number of cases	9	4	6
Average age	25½ mos.	18¾ mos.	21¾ mos.
Average deficiency of weight (compared to normal child) at beginning of treatment	75 oz.	40 oz.	71 oz.
Average deficiency of weight at end of treatment	79 oz.	32½ oz.	59 oz.
Total period of treatment of all cases	58 wks.	34 wks.	45 wks.
Average duration of treatment for each case	6½ wks.	7½ wks.	8½ wks.
Average change in deficiency of weight	Deficiency increased by 4 oz.	Deficiency decreased by 7½ oz.	Deficiency decreased by 12 oz.
Average weekly gain of each child	2 oz. nearly.	2½ oz.	2½ oz.

Obviously the numbers are extremely small, and to my knowledge the general diet was modified in several cases during the period of observation, so that I do not think that any deductions can be drawn from differences between the groups. It, however, is noteworthy that no group showed any striking improvement. Some of the cases included, however, had only two consecutive weeks of treatment. About half of the 19 cases showed definite improvement in their general condition, but none could be said to show any definite improvement in the bone lesions, and the sweating persisted in those cases in which it had been present at the beginning of the period. These observations extended from March to the middle of July.

Result of More Extensive Changes in the Diet.

In July I decided to see if I could obtain any marked improvement in the children by attempting to bring about a greater change in the diet. I gave the mothers instructions as to the general feeding, particularly concerning any obvious errors in the dietary, usually instructing them to increase the quantity of animal fat and protein and cut down the quantity of carbohydrate in the diet. At the same time I endeavoured to push the quantity of cod-liver oil—in some cases I gave as much as ʒ vj daily to a child of about one year. The improvement in this set of cases as compared with the last set of 19 was marked. (This group includes many of the cases already treated in the first group.)

Table showing Results following General Directions as to Diet, with increasing doses of Cod-liver Oil (ʒ ij to ʒ vj daily).

Number of cases	18
Average age (in months)	23
Average deficiency of weight at beginning of treatment	57½ oz.
Average deficiency of weight at end of treatment	41 oz.
Total period of treatment of all cases	... 115 weeks
Average duration of treatment	6½ weeks
Average change in deficiency of weight:	Deficiency decreased by 16½ oz.
Average weekly gain	4 oz.

Not only did the weight approach the normal, but in nearly every case there was a definite improvement in the child's general condition, and in several cases there was an improvement in the bone lesions — for example, less marked beading of the ribs or reduction in size, of enlarged epiphyses; 9 of the 18 cases had excessive sweating at the beginning of the period, and in 5 of these the condition improved or disappeared. On the other hand, David H., aged 1 year and 3 months, for example, who showed very marked improvement in weight and general condition (his weight increased from 11 lb. 14 oz. to 15 lb. 4 oz. in eight weeks), showed no improvement in the sweating. This child at the end of the period was receiving ʒ vj of cod-liver oil daily, and I presume the sweating was evidence that the rachitic condition was still active in spite of the large consumption of cod-liver oil.

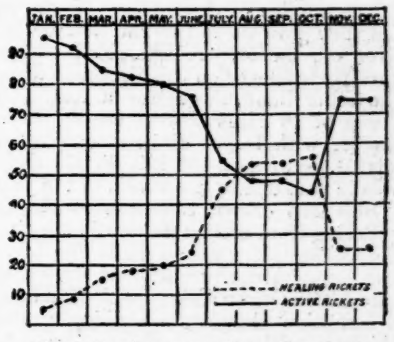
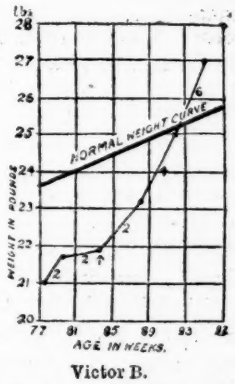
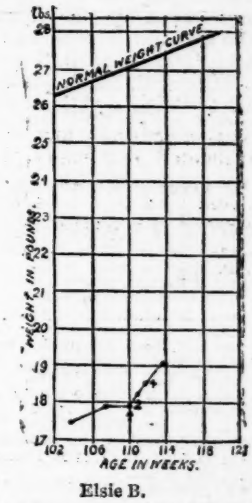


Chart showing percentage of cases examined *post mortem* (386 in all) with active and healing rickets for each month of the year. Compiled after Schmorl. Reproduced from "A Study of Social and Economic Factors in the Causation of Rickets," by M. Ferguson and L. Findlay (Medical Research Committee Report).

In connexion with this group of cases it is of interest to note the seasonal curve of rickets reproduced herewith. It will be seen that July shows a sharp rise in the incidence of "healing rickets." Whether the contrast between this group of 18 cases as compared with the previous group is merely due to the season at which treatment was carried



Victor B.



Elsie B.

Weight charts of two cases in which there was definite improvement from the date at which general dietetic treatment was begun. The arrow indicates the date at which directions as to general diet were given; the numbers against the weight curve indicate the daily dose of cod-liver oil in drachms.

Victor B., aged 1½ years, was the son of a pastrycook, and received large quantities of "pastries." He has attended for seventeen weeks, and shows improvement in the size of the rosary and wrist epiphyses.

Elsie B., aged 2 years, is the child of a widow in extremely poor circumstances.

out, or whether the dietetic treatment was an important factor, it is impossible to say with certainty, but from the observations of Dalyell[21] on the effect of small additions of animal fat to the diets of children suffering from arrested development in Vienna, my impression is that the general dietetic treatment played an important part in the improvement which occurred. (See weight charts.)

Summary.

My observations on these cases are, therefore, so far as they go, in accordance with the fairly general belief that rickets is a dietetic disease and commonly develops in children receiving insufficient fat and too much carbohydrate in the food, and that it shows itself most commonly among those who have been bottle-fed. In the case of one child known to have developed rickets while at the breast it is evident that the mother was receiving an inadequate diet, and it is probable that the infant's diet was also inadequate as a result.

The number of cases observed was unfortunately small, but they gave no indication that fat in the form of cod-liver oil, butter, or cottonseed oil exerts any specific curative influence on the disease in doses of ʒij daily. On the other hand, there was a marked improvement in a group of 18 cases treated during July, August, and September with larger doses of cod-liver oil, together with advice as to diet, but it is certain that this improvement was in part due to the season of the year.

Still has drawn attention to the fact that children suffering from coeliac disease in which there is failure to absorb fat "show a remarkable freedom from rickets."[20] In two experiments recently carried out at the Lister Institute, kittens given a diet deficient in fat-soluble A developed a condition showing a striking resemblance to that of children with coeliac disease: together with arrest of growth and distension of the abdomen there was muscular feebleness and apathy with a "pathetic interest in food." A small liver appears in many cases to be a feature of the disease. All these are points to which Still draws attention in coeliac disease in children.[22] These facts would suggest the conclusion that a deficient absorption of fat-soluble A accounts for the picture in coeliac disease. If that be so, some other factor and not a deficiency of fat-soluble A alone must be concerned in the production of rickets.

In conclusion, I should like to express my great indebtedness to Dr. C. J. Martin for his help and for his kindness in arranging that the expense of this investigation should be defrayed by the Lister Institute; to Dr. E. A. Barton, who took much trouble in collecting suitable cases for me at his infant consultations at University College Hospital; to Miss S. E. Jacob, pharmacist to the Queen's Hospital, and to the many others who were kind enough to send me cases and to co operate in other ways.

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THE VALUE OF EXTENSIVE INOCULATION OF A COMMUNITY DURING AN EPIDEMIC OF TYPHOID FEVER.

BY

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DOUBT can no longer exist concerning the incalculable value of antityphoid inoculation as a means of preventing typhoid fever in military communities. The published figures of the incidence of typhoid fever in all armies during the late war prove this point conclusively. In this case the inoculation has almost invariably been carried out under favourable circumstances and in the absence of an epidemic prevalence of the disease.

The question arises as to the value of inoculation as a means of protection—first, to the individual, and secondly, to the community as a whole—during an actual epidemic. The opportunities for the study of this subject on a scale large enough to give any reliable results have been few. It seems desirable, therefore, to place on record any evidence which will enable an opinion to be formed concerning inoculation under these circumstances.

The opinions hitherto expressed on the matter are of a rather divergent nature. Spooner, speaking of a water-borne epidemic in a Vermont village, remarks that "inoculation in the time of epidemic must be performed with care, since it is inevitable that many must be inoculated during the incubation period. The result of this accident is not serious, however. My experience would indicate that the onset of symptoms was hastened by this step, but that the infection was shorter and of a less severe character." He also notes in another instance the small morbidity among a number of nurses and others intimately exposed to infection before and during inoculation, and points out that this agrees with the observations of Pfeiffer, Leishman, and Russell, that the period following inoculation is one of increased resistance.

Elmer, recording a food epidemic in a hospital at St. Louis, says: "The fact that only 20 out of the 261 who received the vaccine developed typhoid speaks against any marked increase of susceptibility, and the fact that 20 did develop typhoid is against any marked increase of resistance following recently given vaccine."

Basten reports the result of inoculating 245 members of a Sanitats Kompagnie, in which 15 cases of typhoid fever had occurred, 3 of which died. Three doses, of ½ c.cm., 1 c.cm., and 1 c.cm., of antityphoid vaccine were given at intervals of eight days. After the first inoculation, 13 cases of typhoid occurred, two being fatal; after the second, 9 cases occurred, one being fatal; after the third, one case occurred. In a field hospital 4 cases occurred after one inoculation; one after the second, while after the third, five men had elevation of temperature for five days, one of whom died after a relapse during the third week.

Furth, Pfugbeil and Oertel describe the results of compulsory inoculation of the inhabitants of Ostend in 1915 and 1916. Typhoid fever was endemic, and the number of cases in August, 1915, was 38. The population of the town in 1915 was 32,811, and 27,472 received three doses of vaccine. A similar procedure was repeated the following year. They express their results as follows:

"Consequences injurious to health were observed in no case. Two facts in particular speak for the excellent effect of vaccination: Before inoculation, typhoid fever occurred sporadically over the whole area. Its complete disappearance was afterwards directly proportional to the degree of inoculation in the various districts. It disappeared in the districts in the order in which they were inoculated, and did not show signs of abatement until inoculation had taken place. It ceased entirely with the completion of inoculation.

"In the area in question the results of inoculation can be tabulated thus:

	No. of Typhoid Cases.	Deaths.
Period before inoculation (Dec., 1914, to Nov., 1915)	213	18
Period after inoculation (Dec., 1915, to Nov., 1916)	6	0

Of the latter 6 cases of typhoid fever, 4 had not been inoculated, and the remaining 2 cases, who were inoculated, lived with a typhoid carrier."

This inoculation at Ostend was the first instance of compulsory inoculation applied to a large general community.

The object of this paper is to put on record another similar case of compulsory inoculation which occurred in the winter 1918–19, shortly after the Armistice. On the arrival of the British Army of Occupation in Germany it was found that at Euskirchen, a town of 13,000 inhabitants, situated about twenty miles west of Bonn, there was a considerable outbreak of typhoid fever. It will be remembered that the German army had, during November and December, been beating a hasty and more or less disorganized retreat across the Rhine. Euskirchen was situated on one of the main roads of the retreat, and had been largely used as a billeting town, and it will be understood how cases of typhoid fever could arise and be overlooked until there was quite an unsuspected epidemic in the community.

In addition to the outbreak in Euskirchen itself, there were two other minor outbreaks in groups of surrounding villages. The three epidemics were probably not all interdependent. The second outbreak in the village of Gross Vernich was probably spread by water from Euskirchen, the latter town being situated higher up the Erft stream and having no proper system of sewage disposal, and the former village being dependent to a certain extent for its water supply on this same stream.

The third epidemic, however, was probably of quite an independent origin, but is considered here because the three were all coincident and gave similar results.

It is unnecessary to detail all the inquiries which were made to trace the origin of the epidemic—the water supply, the milk supply, butter, etc. All these points were investigated by one of us (A. R.) in conjunction with a German Kreisassistantarzt, Dr. Josef Basten. The investigations led to no definite conclusion. Most of the cases were probably of contact nature, and the original source of infection was not discovered.

It should be pointed out that in the investigation and handling of the epidemic the closest co-operation took place between the German civilian and the British military medical authorities. Conferences were held at frequent intervals by the D.D.M.S. of the corps whose headquarters was situated in Euskirchen, and they were attended by the Kreisarzt and the Burgomeister. The factors involved in the epidemic were considered, and instructions were issued to the civil authorities for the carrying out of certain measures of precaution.

A serious drawback in the early stages of the investigation was the fact that all samples requiring bacteriological and chemical examination had to be sent to laboratories in Cologne and Bonn, which involved considerable delay before the results could be communicated to us. Ten days after the presence of the disease in the town was notified a military bacteriologist began to assist in the examination, and four days later a British mobile bacteriological laboratory was stationed at Euskirchen and materially facilitated the work.

Although no definite source of infection could be discovered, investigations showed that the avenues for contact infection were many. The inhabitants were badly nourished, and in no fit state to resist disease. The schools were closed, the children played in the streets, consorted with German troops, visited one another's houses to an increased extent, and frequented the banks of the local stream, the Erft, and its branches, into which the untreated sewage of the town discharged. A lack of disinfectants at the hospital, and the fact that several privies in the poorer quarters discharged directly into the various tributaries of the stream, no doubt also conduced to widen the distribution.

Inoculation of Civilian Inhabitants.

Inoculation of the civil community was performed in each of the three districts where the outbreaks occurred, and this process can now be briefly described.

1. *Euskirchen.*

On January 7th, 1919, orders were issued by the British military authorities for the compulsory inoculation of the civilians with British T.A.B. vaccine. An attempt had been made previously by the Kreisarzt to obtain a supply of German antityphoid vaccine from Berlin for voluntary inoculation, but circumstances rendered its delivery impossible.

T.A.B. vaccine contains in 1 c.cm.—

B. typhosus	1,000 millions
B. paratyphosus A	500 ,,
B. paratyphosus B	500 ,,

The routine method in the British Army is to give two doses at intervals of ten days. It was decided that all persons between the ages of 6 and 45 years should be inoculated, with the exception of those certified by a doctor to be suffering from an ailment which contraindicated such treatment and of women three months before and two months after childbirth. The limit of 45 years was afterwards felt to be inadvisable, and when inoculation of the other districts was practised, it was raised to 55.

The doses were graduated according to age—the first dose being as follows:

For persons between 6 and 10 years	½ c.cm.
,, ,, 11 and 17 years	¾ c.cm.
,, ,, 18 and 45 years	1 c.cm.

Instructions to the above effect were issued to the Kreisarzt, and at a meeting of German doctors which he convened a detailed scheme was planned on the lines of that followed at Ostend in 1915, when the Germans inoculated the inhabitants of that town. On January 7th, 1919, the Kreisarzt contributed an article to the local press in which he pointed out the value of inoculation against typhoid, and urged the people to volunteer to be inoculated as soon as the necessary arrangements could be made. Three days later a further notice appeared in the same paper to the following effect:

The British military authorities have ordered the inoculation of the inhabitants of the town between the ages of 6 and 45 years. The inoculation will be done in two doses, with an interval of ten days between them. The following are exempt:

(1) All persons suffering from a fever.
(2) All persons with serious lung disease.

These are required to furnish a medical certificate to the police at 7, Bischofstrasse.

Also exempted are women three months before and two months after childbirth. They will be required to show a medical or midwife's certificate.

The inoculation will take place on the following days: (A list of centres follows at which dwellers in specified streets had to present themselves on particular days.)

Everybody must be inoculated on the day ordered.

The dates for the second inoculation will be published later.

The inoculation was carried out by German doctors at six public centres and also in private. T.A.B. vaccine, hypodermic needles, and methylated spirit were supplied by the British medical authorities. The staff at each centre consisted of:

1. A German doctor.
2. A clerk who took down the name, age, address, etc., of each person inoculated.
3. A female attendant who prepared the site of injection with iodine.
4. An attendant to sterilize the needles.
5. A policeman.

Members of the Administrative Medical Service visited the centres daily.

The population of Euskirchen was 13,010, of whom 8,385 were between the ages of 6 and 45. About 1,200 people were inoculated each day until 8,339 cases had been dealt with.

The first inoculation began on January 11th and ended on January 17th. The second doses were begun on January 21st, and by January 28th 8,076 had been done. On February 4th an additional 112 absentees were done, the number thus being brought up to 8,198. It is apparent, then, that about 62 per cent. of the population had been vaccinated.

2. *Weilerswist and Gross Vernich.*

The combined population of these two villages was estimated at 2,492. The villagers were informed by proclamation by the Burgomeister of the arrangements made for inoculation. They were similar to those adopted at Euskirchen.

The numbers receiving first and second doses were 1,763 and 1,738 respectively, thus over 70 per cent. of the population of the villages were protected by two doses. The age limits were fixed at 6 and 55 years.

3. *Sechtem, Merten, Tripplesdorf, and Walberberg.*

These four villages were very closely adjacent, and their total population was given as 5,010. Similar orders were issued, and the numbers inoculated at the first and second period were respectively 3,314 and 3,417. Between 65 and 70 per cent., then, had received the two doses.

CASES OF TYPHOID FEVER.

There were 199 cases of typhoid fever in the three epidemics in the town and villages of a combined population of about 20,000, and of these cases 34 died—approximately 17 per cent.

Four of these deaths occurred in people who had been recently inoculated twice. The onset of the disease began within the first twenty-four hours after the second inoculation (2 cases), on the eighth day after, and on the nineteenth day after the second dose. Two other deaths occurred in cases after the first inoculation, and in each case the symptoms began within the first twenty-four hours.

There were altogether thirty-eight cases of typhoid following inoculation, and amongst them there were six deaths—that is, mortality = 15.7 per cent. With the exception of these six deaths practically all these cases were of a light nature.

SUMMARY.

It is hardly justifiable to arrive at any definite conclusion from the above figures. The daily numbers of onset were very much on the decrease before the inoculation was begun, but it must be remembered that some cases were not removed at once to the hospitals for isolation and they were acting as sources of infection for some time afterwards. During the early period of inoculation there were probably more sources of infection "at large" than appear at first sight, and one would be inclined to imagine more people, as a result, incubating the disease. The fact that there was in each epidemic a recrudescence of cases immediately after inoculation tends to support this theory.

The arguments against inoculation during an epidemic do not appear to be supported by facts, and it is claimed that additional evidence has been brought to light in favour of inoculation under these circumstances. The advantageous effects of the inoculation may for convenience be described under three heads—(*a*) direct, (*b*) indirect, (*c*) remote.

(*a*) *Direct.*—One of the most difficult problems in dealing with an epidemic of this type is the notification and consequent isolation of light cases in which no medical aid has been sought. It is apparent that the inoculation brought some of these to notice so that they could be removed and isolated more quickly. It is also suggested that some cases incubating the disease developed symptoms more rapidly than they would otherwise have done, and these again were more quickly found out and removed as sources of danger. The sudden cessation of the epidemic after inoculation is very striking.

(*b*) *Indirect.*—The indirect advantage lies in the accessory administrative handling of the epidemic. Undoubtedly much good was done by the issue of orders to the effect that exemption could only be allowed by medical certificate. This, accompanied by an energetic house-to-house inquiry, in the case of defaulters, brought several cases to light which would otherwise have lingered on in their own homes.

(*c*) *Remote.*—There can be no doubt that many cases were saved by the fact that contacts of some of the later cases had been inoculated. The almost dramatic termination of the epidemic gave a feeling of satisfaction and security to the inhabitants, and the precautionary orders regarding water and dairy supplies, etc., which were issued were withdrawn or modified at an earlier date and with more confidence than could otherwise have been the case.

It is regrettable that the incidence and mortality amongst the inoculated were so high, but it may perhaps be added that in the neighbouring Kreis of Rheinbach, where immediate inoculation of all contacts of all new cases occurring in the area was ordered, there were practically no secondary cases of the disease and no deaths.

In conclusion, therefore, the opinion is put forward that an extensive inoculation during an epidemic of typhoid fever is beneficial, probably to the individual in particular and almost certainly so to the community as a whole.

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IMMEDIATE SURGICAL COMPLICATIONS OF DYSENTERY.

BY

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"DYSENTERY" is a general term applied to conditions characterized by passage of blood and mucus in the stools. In amoebic dysentery the mucosa and submucosa of the colon is invaded by *Entamoeba histolytica*, which can ingest red corpuscles; this property is employed in the recognition of its vegetative form in microscopic preparations. Other manifestations of this infection are acute hepatitis or acute liver abscess. The majority of cases of these conditions fail to give a history of dysentery, although in all there has been possible exposure to infection by *E. histolytica*.

Bacillary dysentery is due to infection of the wall of the colon with a variety of organisms distinguished from one another by fermentation and serological reactions. The two chief groups are:

1. The *B. dysenteriae* (Shiga) group, which give rise to an intensely acute and severe form, and
2. The *B. dysenteriae* (Flexner) group (the chief perhaps being Flexner's Y bacillus), which give rise to a milder clinical type.

Both of these subgroups include a very large number of organisms which have the common group fermentation reaction, but in other respects have been shown to be distinct and separate entities.

The immediate complications of dysentery may be given in a comprehensive way as:

A. Acute hepatitis.
B. Acute liver abscess.
C. Perforation of the colon (gangrenous colitis).
D. Gangrenous proctitis.
E. Synovitis with effusion into the larger joints.

A. and B. are due to infection by *E. histolytica*, and, amoeba having been found in the portal capillaries, this may well be the path by which it reaches the liver from the intestine. C. and D. are due either to infection by amoeba or bacilli, *plus* a secondary infection with intestinal organisms. E. is a complication of bacillary dysentery only.

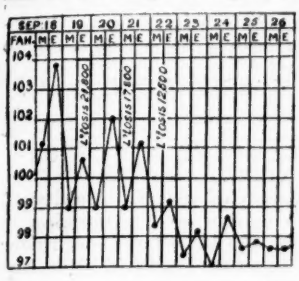
A. *Acute Hepatitis.*

Acute hepatitis is often difficult to diagnose from liver abscess. After a period of malaise the liver is found to be enlarged and tender. Pyrexia is present, but is not so remittent as in liver abscess. Evening temperature may reach 103° F. Leucocytosis is generally present, varying from 10,000 to 20,000 per c.mm. The patient is sallow and the conjunctivae are icteroid.

One of us (B. H.) operated on two cases of acute amoebic hepatitis in which liver abscess had been diagnosed. In both the enlarged liver presented the same very characteristic appearance, the colour resembling that of a ripe damson. An exploratory needle thrust into the organ failed to find pus, and a syringeful of blood was withdrawn.

In case of doubt as to the diagnosis, we think it justifiable to give the patient a course of emetine before undertaking any operation. If the condition be one of pure amoebic hepatitis, improvement will show itself within three or four days, and the whole of the symptoms will soon subside. The following case is typical of this condition:

Captain W. was admitted to hospital in Salonica in May, 1916, suffering from diarrhoea. He was evacuated to Malta, and while on the ship developed acute hepatitis. In Malta an operation was about to be performed when, at the last moment, it was decided to try emetine, of which he had two seven-day courses of gr. 1 daily. He recovered without operation.



In September, 1917, a second attack occurred. He was admitted to the 28th General Hospital, Salonica. Temperature 101°; liver enlarged and tender; leucocytosis 21,800. Emetine 1½ grains daily, was given for seven days, and repeated after an interval of seven days. The pyrexia and leucocytosis subsided in five days and all hepatic and other symptoms disappeared. The temperature chart is appended.

B. *Acute Liver Abscess.*

This is a very serious condition, because the abscesses are so often multiple. Acute liver abscesses, as we saw them, differed somewhat from textbook descriptions. An exploratory puncture with a needle in the sites recommended was useless, and in no case were we able to withdraw any of the abscess contents, since the pus was too thick to be drawn into the syringe. Successful aspiration of the contents of these abscesses has been reported from China, but we are informed that the instrument used there resembles what we employ for removing the core from an apple.

The most common site for liver abscess is in the upper and posterior aspect of the right lobe, although, as mentioned before, secondary abscesses often exist. The left lobe, though not a common site, is not exempt.

Most noticeable in our cases that came to autopsy was the extreme destruction of liver tissue—a destruction not confined to the abscess cavity only. Immediately adjacent to the main abscess cavity was a zone of ragged and destroyed liver substance; next to this was a zone of acutely inflamed liver tissue, and again outside this was a zone of liver tissue that had undergone extreme fatty degeneration. The remainder of the liver substance was in a state of acute hepatitis, and resembled that already mentioned.

The symptoms of acute liver abscess are fairly definite. The liver is enlarged and tender, the liver dullness may extend high up on the right side behind, and friction sounds may be heard at the right base; there may also be some fluid in the right pleural cavity. These last two signs are important. Pyrexia is present, the temperature reaching 103° and remitting. Leucocytosis from 10,000 to 20,000 is almost invariable, and the patient presents both an icteroid tinge and a characteristic facies. There may be, but often there is not, a previous history of diarrhoea with blood and mucus in the stools. When the negative history was given in our Salonica cases it was usually found that the patient had been in Egypt (where *E. histolytica* infection is rife).

The treatment that gave the best results was an anterior incision about two inches in length through the right rectus muscle. The liver was exposed and packed off with dry sterile gauze from the general peritoneal cavity. A long pair of sinus forceps was introduced into the right lobe in an upward and backward direction, and it was readily felt to enter the main abscess cavity. The thick contents, which resembled anchovy sauce, were evacuated, and a large tube was introduced. The patient was nursed in the sitting position, and drainage by these means was excellent. Into the abscess cavity, through the tube, was introduced quinine bihydrochloride three times daily, and the patient was lowered for half an hour to prevent its immediate escape. In addition emetine (1 grain) was administered hypodermically daily for the first ten days. At first we instilled eusol through Carrel's tube placed inside the large drainage tube. This was not successful, the liver being found *post mortem* to be acutely autolysed. Twort has shown that eusol inhibits the movements of *E. histolytica* but does not kill it. The quinine solution, on the other hand, has an excellent effect. In making the daily dressings the strictest aseptic precautions should be observed. We found the track very apt to become infected with anaerobic bacilli, although we saw no actual gangrene.

Microscopic examination of the contents of an abscess cavity showed masses of liver cells, connective tissue liver cells, red and white blood corpuscles, granules of pigment, casts of bile capillaries, and tissue debris; the leucocytes were not in great excess. The amoeba was not found in the pus as a rule, although in one case, after an hour's search, it was discovered in very active movement. The amoeba was constantly found in scrapings from the wall of the abscess. Cultures made from the pus were in all cases sterile.

Macroscopically, the pus in the fresh state was accurately described as resembling anchovy sauce. After standing for a day or two it separated into three layers—a transparent zone of haemolysed blood above, a dark red intermediate layer, and a lower buff-coloured zone of solid matter.

In none of our cases did we employ the transpleural route for approaching and draining the abscess, because in the experience of our colleagues this route, in the case of acute abscess, did not give satisfaction. Out of nine cases operated upon by one of us (B. H.) there were five recoveries and four deaths. The prognosis was good so long as the abscess was single and was thoroughly evacuated and treated by quinine solution locally and emetine administered hypodermically. All such cases recovered. In cases of multiple abscess with very great destruction of liver tissue, and also in cases complicated by severe recurrent malaria, the prognosis was very bad.

C. *Perforation of the Colon: Gangrenous Colitis.*

This complication was notoriously fatal; it presented symptoms and pathological changes that were wholly new to us, and afforded ground for speculation. The usual history was as follows:

A patient, apparently convalescing satisfactorily from a chronic recurrent dysentery, exhibits abdominal distension. The pulse remains good, the patient is conscious and not apparently distressed. Within a very short time, often a few hours from this period, the pulse becomes rapid and thready. The patient breaks out into a cold perspiration, and dies within a few hours or so.

Operation was undertaken on three patients whose condition at the time seemed to justify its performance, whereas others were left, as their condition was hopeless. At operation it was found that the colon, especially in the region of the sigmoid flexure, was greatly thickened and gangrenous, and any attempt at handling it only resulted in tearing the gut, so friable was its condition. In one case that was operated upon before perforation had occurred, a colostomy was performed in the transverse colon, and the distal limb of the bowel, which appeared to be the main site of infection, was washed with warm Dakin's solution. At autopsy the same gangrenous condition of the gut was found.

Gangrenous colitis occurred mainly in cases of long-standing chronic dysentery, of both bacillary and amoebic types. The wall of the colon became ulcerated, infiltrated, and enormously thickened. Healing might occur at this stage after repeated acute attacks, and the typical thickened colon of the chronic dysenteric patient remained. If, however, healing did not occur gangrene and perforation were apt to set in suddenly. Most of the cases in which this occurred were complicated by frequently recurring malaria, and we think that this was a definite if not the determining factor in bringing about the lowered vitality of the wall of the bowel which led to the gangrene.

We never saw or heard of a case that recovered. The onset of the abdominal distension is so rapid that when once it has occurred operation seems hopeless. The

toxaemia is so intense that these patients die within a very short time, and operation only hastens their end.

D. *Gangrenous Proctitis.*

This condition may be due to an extension downwards of the process in gangrenous colitis or may arise primarily. The pathological condition appears to be the same as that occurring in the colon. Painful haemorrhoids at first appear which rapidly become thrombosed. This is followed by a varying degree of rectal prolapse, the prolapsed portion rapidly becoming gangrenous. The degree of toxaemia varies. It is usually very severe, depending upon the extent to which the rectum is affected. In one case the portion of prolapsed rectum sloughed away and recovery followed, but in three other cases death rapidly ensued, the degree of toxaemia being intense. Colotomy seems to be the only possible treatment, but, speaking from what we saw of this condition, the patients are too ill to stand any surgical interference.

E. *Synovitis with Effusion into the Larger Joints.*

This complication is usually the result of bacillary dysentery, and occurs from the eighteenth day after the infection first manifests itself. Any of the larger joints may be affected, but in our cases most commonly the knee-joint. Very rarely were two joints involved simultaneously. The joint becomes distended with fluid, hot, tender, and painful. The fluid shows little tendency to become absorbed when the joint is put at rest. If left alone the condition gradually passes into a chronic state, leaving a thickened synovial membrane which shows very little tendency to resolve. The synovial fluid from these joints is straw-coloured and not turbid; repeated examination has shown it to be sterile.

By far the most satisfactory treatment is early aspiration of the contents and the injection of 5 c.cm. of ether into the joint cavity during the acute stage. A general anaesthetic is usually required. The joint should be kept absolutely at rest, and as soon as the acute stage has passed firm strapping with Scott's dressing is employed. With this must be conjoined suitable treatment for the bowel. This treatment certainly gave most satisfactory results, in that the patients were able subsequently to use the joints without pain, thickening of the synovial membrane was avoided, and the wasting of the muscles around the joint, which was so extreme in cases that had passed on to a subacute or chronic stage, was in great part avoided. Subsequent recovery of the muscles was rapid.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PLACENTA ABLATA TREATED BY PITUITRIN WITH OBSTETRIC ANAESTHESIA.

THE following case, which occurred recently in my experience, may be of interest. The patient, aged 35, has had eleven children, born at full term; her twelfth conception resulted in miscarriage with persisting endometritis. She became pregnant again in March of this year. Throughout the pregnancy she suffered from severe pain—more or less continuous—in the left iliac region.

Labour commenced at 10 p.m. and continued normally until midnight when excruciating pain suddenly developed in the left side, accompanied by severe external haemorrhage. The patient felt sick and faint and commenced to vomit. As the haemorrhage continued a midwife was summoned. She in turn sent for medical aid. On arrival I found the patient practically pulseless, blanched, and collapsed. The uterine tumour was the size of a full-time enlargement with a somewhat ligneous consistence. Internally, the os permitted the entry of two fingers and was dilatable; the membranes were tense between the pains, while the head engaged the brim in the L.O.A. position. The external haemorrhage had stopped between the pains, but recurred in small measure with each pain. Under obstetric anaesthesia, ½ c.cm. pituitrin was injected intramuscularly, followed by another ½ c.cm. in half an hour. Immediately after the first injection, as there was evidence of hydramnios, I ruptured the membranes; the external haemorrhage ceased.

Ten minutes after the second injection a seven months foetus, partially macerated, was expelled, followed immediately by the placenta and membranes which were complete. There was no evidence of retroplacental clot nor placenta succenturiata. The uterine tumour was doughy in consistence and extended beyond the umbilicus. Vigorous kneading and expression promptly stimulated the uterus to expel a clot equal in size to a foetal head, after which satisfactory contraction and retraction occurred. The convalescence of the patient has been very satisfactory.

With regard to some of the points that have been raised in discussion of the etiology of this condition, the following may be mentioned: (1) There was no history of trauma; (2) there was distinct albuminuria; (3) there was moderate hydramnios; (4) the umbilical cord was of normal length; (5) there was a history of endometritis preceding this pregnancy; (6) this was the thirteenth pregnancy.

With regard to the treatment, the use of pituitrin with obstetric anaesthesia gave good results in this case and obviated the use of forceps. In my experience, the action of pituitrin given, in suitable cases, in doses of ½ c.cm., repeated in half an hour and modified by obstetric anaesthesia, gives far better results than if the action is not so modified.

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Stockton-on-Tees.

SURGICAL EMPHYSEMA AFTER A BLOW ON THE NECK.

THE following case seems worthy of record. A girl aged 10 years was playing in the garden on the morning of October 10th. At about 10.30 she placed a short ladder against the fence, which was between 4 and 5 ft. high. She climbed to the top of the ladder, which then gave way so that in falling she struck the front of her neck against the top of the fence. Within a quarter of an hour the neck began to swell and she became breathless. The doctor who attended her sent her to the hospital. I saw the patient at 11.45 a.m.

On examination there was a red mark on the skin over the trachea but no bruising. There was no visible bruise on any part of her body, the whole of which, from her head to her toes, was ballooned out with surgical emphysema. The skin was the colour of a boiled lobster, and one could indent one's finger into the trunk to a depth of almost two inches. The eyeballs were occluded on account of emphysematous eyelids, and the tongue was swollen. The patient was extremely dyspnoeic and cyanosed. It was obvious that she was being asphyxiated, and I decided to do a tracheotomy at once. After a few whiffs of chloroform the cyanosis increased and the patient stopped breathing. On cutting into the tissues of the neck the emphysema was so intense that the depth of the trachea from the skin was nearly 3 inches. The operation gave immediate relief. The next morning the patient could see a little with both eyes, and her general condition was better. She said she felt no pain, and was quite comfortable. During the next day or two a little more air escaped into the tissues of the upper part of the chest. The tracheotomy tube was removed on the fourth day. The surgical emphysema gradually disappeared, beginning at the extremities. The girl made an uneventful recovery, and was discharged from the hospital on October 31st.

The house-surgeon, Mr. Landells, and I examined her chest repeatedly and could find no evidence whatsoever of fracture. She gave no sign at any time of pneumothorax or collapsed lung. At the time of operation it was impossible to examine very closely the portion of trachea exposed, but there appeared to be no injury. The patient was a very intelligent little girl and described her accident minutely. She was emphatic in saying that she felt no pain anywhere else but at the point of impaction, the front of her neck. The most curious feature of the whole affair was the complete absence of any physical sign, fracture, bruise, or wound, which could explain the enormous amount of surgical emphysema present.

The only explanation which the house-surgeon and I can suggest is that the impact on falling suddenly dragged up the trachea and tore a hole either in one of the bronchi or possibly in the trachea itself. The patient immediately began to expire air into her neck and face, and then, when the swelling in her neck became sufficiently great, it partially occluded entry of air through the larynx, so that the patient would go on pumping air into her tissues through the hole caused by the injury. Tracheotomy immediately relieved the obstruction and gave the hole time to heal.

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Surgeon, The Royal Hospital, Richmond.

PLEURAL REFLEX.

THE following case, which presents unusual features, is, I consider, worthy of notice:

Two years ago the patient, a married woman, aged 29, had a right-sided pneumonia, followed by empyema. The empyema was drained after resection of rib, but the cavity continued to discharge for six months. An Estlander's operation was then performed and was successful except for the persistence of a small sinus, communicating with the pleural cavity and leading up to the root of the lung. Eight months ago, on syringing the

sinus, the patient collapsed, and had to be restored with brandy and oxygen. Since then she has been dressed daily; the sinus still discharges a thin sero-pus which the bacteriologists report as containing less and less bacteria on each examination.

Five days ago the sinus was again syringed with Dakin's solution, and the patient was unaffected on this occasion and on the three succeeding days on which she was syringed. On the fifth day she suddenly collapsed during the injection of Dakin's solution and was put to bed pulseless and with a feeble respiration. Brandy, oxygen, strychnine $\frac{1}{30}$ gr., and raising of the foot of the bed were resorted to, and the patient gradually recovered. On recovery she found she was completely blind and unable to distinguish between light and darkness. Her pupillary light reflexes were present and her discs were normal. Two hours after the "faint" she began vomiting. This continued for twelve hours. She was repeatedly assured that her sight would return. For twenty-five hours after the loss of consciousness, however, she remained completely blind. After this the return of sight was gradual, and it was two hours before it was completely restored.

The probable explanation is an anaemia of the occipital lobes, but why the return of vision took so long is not clear.

London Hospital, E. W. F. CASTLE, M.B., B.Ch.Camb.

Reports of Societies.

FILARIASIS IN BRITISH GUIANA.

AT a meeting of the newly formed Section of Tropical Medicine of the Royal Society of Medicine, held on November 30th, Sir LEONARD ROGERS presided, and Dr. J. B. CHRISTOPHERSON gave a practical demonstration on a patient of the technique of intravenous injection of tartar emetic in bilharziasis, and a number of exhibits were also shown.

Dr. F. G. ROSE read a communication on "Filariasis in British Guiana," based on the results of his five years' work in that colony, where infection with *Filaria bancrofti* is very common.

Liability to infection, he said, varied in different areas, being far greater in the more densely populated parts, such as Georgetown; it was chiefly from such areas that the cases discussed were drawn—hence the high index of incidence. The concentration method of Smith and Rivas showed that infection was often present in the blood even when no actual embryos were detectable in it; and the method enabled embryos of nocturnal habit to be detected in the peripheral blood during the day. The percentage incidence he found was 19.5 for males, 23.3 for females. Elephantiasis incidence was 5.3. Putting together all factors, the speaker estimated that at least 40 per cent. of the population had been at some time infected with the parasite. In Georgetown Public Hospital 5 per cent. of the patients suffered from elephantiasis, and 20 per cent. showed the clinical manifestations of filariasis: of the school children 25 per cent. revealed filaria in the blood. The infantile death rate was over 200 per 1,000, and the proportion of stillbirths was very high. Not usually a fatal disease, filariasis did not figure largely in death returns, but it showed itself in recurrent attacks of lymphangitis and lymphadenitis, and in symptoms resulting from the absorption of toxic products from the bowel, as well as in the crippling results of elephantiasis affecting the limbs, scrotum, and breasts; the accompanying sepsis might lead directly to a fatal termination. In the absence of a necropsy the impression might be formed that the case was one of pernicious malaria. The speaker believed filariasis to be a factor in the production of the large number of stillbirths. Certainly it was responsible for large financial loss owing to the amount of sickness.

In the author's investigations, *Culex fatigans* and *Stegomyia fasciata* were the most frequent potential carriers in the colony. The sanitary conditions in the island were bad, and among the general populace the use of mosquito nets was practically unknown. Of the mosquitos examined only 7.4 per cent. were found to be infected with filariasis, so that a vigorous preventive campaign seemed to promise well. With regard to the causation of filarial periodicity, no theory yet propounded fitted in with the known facts, but in this communication an explanation, as yet unverified, was submitted for criticism and debate. The significant fact was that the periodicity of the embryo was the periodicity of the mosquito host, and the explanation seemed to lie in the habits of that host. He believed that there was an essential connexion between the sheath of the embryo and its periodicity (the non-periodic embryos had no sheath). Both forms of embryo were found in greater numbers in the lung capillaries than elsewhere. The tension of the blood certainly played a part in hindering the passage of the embryos, which were swept with the lymph into the thoracic duct. In the circuit there were two potential seats of obstruction—namely, the pulmonary and visceral capillary systems. While mosquitos were about, however, there seemed to be some agency which released the embryos temporarily; the intensity of this influence increased as feeding time approached, waning after repletion.

Sir PATRICK MANSON expressed himself as much interested in the paper, especially that part which dealt with periodicity. This subject offered problems the solution of which was beyond his ingenuity. Filariasis was more important than was usually apprehended, and, in view of Dr. Rose's estimate that 40 per cent. of the population of British Guiana were or had been affected by it, it was relevant to ask why the sanitary authorities in the colony had not done something to prevent this definitely preventable disease.

Colonel JAMES asked if any system of notification was in force. To get rid of the *Culex fatigans* would not be a very difficult problem if the money were forthcoming, especially if a proper water supply were provided. In infected houses a 7.4 per cent. infection rate of *Culex fatigans* seemed low; the argument might be advanced that in the presence of such a rate there was little need for special precautionary measures.

Major BLACK raised the question why so many thousands who had the filaria in their blood did not show symptoms of the disease; he knew many who had survived the invasion of their blood and were still alive and apparently well. There was need for much research and study on this subject, especially in regard to the differences in the varieties of the parasite and their habits. He believed the subject was about to be taken up in Australia, and he suggested that the researches might be co-ordinated.

Dr. MANSON-BAHR believed that the non-periodic *Microfilaria bancrofti* had a wide geographical range, but that its limits were clearly demarcated.

Dr. R. T. LEIPER said that Dr. Rose had brought out the importance of the bacterial infections which previous observers had overlooked. He did not think the death of the parent worm or abortion by the female worms was a cause of the lesions which followed filarial infection. He did not believe that the filarial periodicity was an adaptation to the habits of the mosquito; that periodicity was, in his view, a biochemical reaction.

The PRESIDENT emphasized the great importance of secondary infections; he had used streptococcal vaccines, which had given promising results and lessened the number of attacks.

PHYSICAL THERAPEUTICS.

AT a meeting of the Medico-Chirurgical Society of Edinburgh on December 1st, Emeritus Professor F. M. CAIRD presiding, a discussion on physical therapeutics was opened by Dr. J. STUART ROSS. His remarks dealt especially with disabled pensioners and with results obtained at the Orthopaedic Annexe at Tynecastle, Edinburgh. Four main conditions presented themselves: fibrositis in its many forms in muscles, ligaments, skin; varieties of muscular lesions; nerve injuries; and persistent sinuses or unhealed open wounds. The question of operative treatment having been settled, it remained to apply remedial treatment. The great importance of intelligent co-operation on the part of masseuse and patient was emphasized. Massage stood first in remedial treatments, the effect of which was to remove the products of inflammation, to improve the circulation, to relax muscular spasm, relieve nerve pain, mobilize scars, and develop muscles. A séance of massage was usually completed by passive movement, though this had limited uses. Movements and exercises, supervised and graduated, were valuable in restoring recently paralysed muscles, and in such exercises the posture of the enfeebled muscle and the necessity of relaxing its opponent were important. Under this heading the speaker dealt with curative workshops, where, on the whole, his experience had been disappointing because of the tendency, often unconscious, of men to "dodge their deformity." He spoke

briefly of muscular re-education in tabes, disseminated sclerosis, and poliomyelitis. *Electrical treatment* was then taken up in its various forms. The sinusoidal current was the sovereign remedy for chilblains. As to galvanism, ionization was indicated in scars and chronic synovial conditions; in rheumatic pains, with salicylate at the positive pole, and sulphur at the negative; and in closing sinuses with brilliant green (+) and ichthyol (−). Galvanic limb-baths for conditions of paralysis were sometimes useful, if the limb were carefully placed in the bath. Lastly, in eliciting the first muscular movement after paralysis, the galvanic current was of value. Faradism was indicated generally for conditions in which muscular movement was defective and not absent. He advocated the use of shallow faradic foot-baths for five to ten minutes in early flat-foot, where the results were very good. He dealt lastly with the use of graduated splintage—that is, the use of retentive apparatus which applied steady and continuous traction. This was indicated in many forms of contracture and stiffness of limbs, exclusive of articular conditions. Various examples of retentive apparatus and graduated splints were shown, and their effects upon conditions of contracture demonstrated by lantern slides.

Dr. LUKE cited a case of paresis of the deltoid after chorea where massage and electricity had done some good, but where further substantial benefit was effected by six weeks' rest. As to ionization, the results were good but were only obtained slowly, and the treatment required both patience and faith on the part of the patient. Dr. EDWIN BRAMWELL spoke of the functional element associated with many organic conditions and the importance of assessing the amount of this functional factor in such cases. The presence of this functional element and its curability must be pointed out to the patient. The oldest functional cases were hardest to cure, because there the confidence and co-operation of the patient were more difficult to secure, and the demonstration to the patient of any muscular movement was of great importance. The value of electricity was largely hypothetical; it was difficult to prove by animal experiment, and the benefit which sometimes resulted was largely due to suggestion and the personal influence of the physician. Dr. A. GOODALL quoted an experiment by Sherrington on the decerebrate animal, in which extensor spasm was inhibited by stimulation of the flexor muscles; he advised the application of the principle to cases of contracture.

Dr. R. FLEMING defended the use of electricity in conditions of paralysis; massage was good, but it was better still if supplemented by electricity. He also emphasized the value of re-education in disseminated sclerosis. As an instance of the value of pulmonary gymnastics he quoted a case of tuberculous pleurisy in which the friction was demonstrated to a class of students, and was heard by about a dozen, and then became no longer audible. Dr. WEBSTER said that the effects of massage and electricity could be increased by preliminary treatment of the paralysed limb or part. This was cold and stiff, and by bathing and various forms of light irradiation it could be softened and flushed with blood. The subsequent treatment then became more effective.

Mr. J. W. DOWDEN maintained that many of these post-war cases of contracture were the result of bad treatment. The principles of correct treatment of cases of wounds and fractures were early active movement, and the less splints the better. He gave his own experience of this method in fractures of the upper arm and clavicle. Such treatment lessened the formation of scar tissue, and pumped the pus out of septic wounds, and would prevent many of these cases of contracture. Nerve injuries could not be treated in this way, but they were very few. Dr. MACRAE TAYLOR made some remarks from the point of view of the taxpayer. In many cases pensioners found treatment more pleasant than work, and did not want to return to work, and in this way introduced a functional element which was against recovery. But it should be the prime object to get them back to work as soon as possible. Mr. J. W. STRUTHERS spoke of the need in civil practice of such methods of physical treatment. Every large civil hospital required an orthopaedic department of this kind, where sprains, fractures, wounds, and whitlows could be dealt with both in their early and late conditions.

CHORION-EPITHELIOMA.

AT a meeting, held at Sheffield on November 19th, of the North of England Obstetrical and Gynaecological Society, the President, Mr. MILES H. PHILLIPS, described a case of chorion-epithelioma of the ovary in a woman aged 25.

The patient had had one child two years previously, but no miscarriages; she was first seen in May, 1920. Menstruation was regular till January, 1920, when, after six weeks' amenorrhoea, she had a "flooding attack" lasting fourteen days. Severe pain accompanied this attack, but only lasted half an hour; a similar attack of pain occurred five weeks later. In March, 1920, there was another loss, which the patient regarded as an ordinary period; from this time until May there was amenorrhoea. An abdominal swelling had been noticed by the patient for a month, and she had also suffered from daily nausea and vomiting and occasional frequency of micturition. On examination she did not look ill, and there were no breast changes; a central elastic tumour occupied the abdomen and reached nearly to the umbilicus; no souffle or foetal heart sounds were audible. On vaginal examination the uterus was of normal size and pushed forward by a nodular mass continuous with the abdominal tumour.

As the history suggested an ectopic gestation, and the tumour was apparently an ovarian one, a provisional diagnosis of ovarian pregnancy was made and the patient admitted for operation.

On opening the abdomen, an irregular haemorrhagic tumour was found rising up from the pelvis behind the uterus and covered by adherent omentum. The tumour occupied the position of the right ovary, the right tube being stretched over its anterior surface; there was considerable infiltration of neighbouring structures, and the growth was separated from these with great difficulty. The appearances were so strongly suggestive of chorion-epithelioma that it was considered advisable to remove the body of the uterus and the left appendage, although they were apparently healthy. No metastatic growths were found in the liver or other parts of the abdomen. The tumour was ovoid in shape and measured 8 by 5 by 5 in. On section it was dark and haemorrhagic in appearance, and microscopically showed all the characteristic cells of chorion-epithelioma.

The patient made a good recovery, leaving hospital at the end of the fourth week, but she had recently developed a rapid recurrence in the pelvis. Mr. Phillips had only been able to trace five other recorded cases of chorion-epithelioma of ovary.

Dr. J. CHISHOLM read a paper reviewing thirteen cases of chorion-epithelioma admitted to the Jessop Hospital, Sheffield, since 1908; of these, four had occurred during the present year. The primary growth was uterine in ten cases, tubal in two, and ovarian in one. The age incidence varied from 21 to 43 years; half the cases occurred before the 35th year. The tubal and ovarian cases being excluded, vesicular mole had preceded the chorion-epithelioma in 50 per cent. of the cases. The interval between the last pregnancy and the first observed symptom of chorion-epithelioma was variable, but in the cases following vesicular mole no interval occurred, the haemorrhage being continuous. Where the growth was tubal or ovarian the symptoms closely resembled those of ectopic pregnancy. In uterine cases bleeding was always the first symptom. Pain, when present, occurred later, and was usually of no great severity. Vomiting sometimes occurred and was severe in a case in which free blood was present in the abdomen, from perforation of the uterine wall by growth. Haemoptysis was present in two cases, in one being slight and disappearing after operation, in the other more severe and due to secondary deposits in the lungs. In ten cases a tumour of varying size was noted on abdominal examination. This was median in position, soft and tender, closely simulating the pregnant uterus. Twelve patients were operated on, the remaining one being too advanced. The after-history of those submitted to operation was:

Died: 2 cases (one shortly after operation from bronchial trouble, one in a year from recurrence).
Alive and in good health: 7 cases (operation over ten years ago in 2, over three years ago in 3).
Alive but growth had recurred: 1 case (ovarian).
Not traced: 2 cases.

EYE-STRAIN.

AT a meeting of the West London Medico-Chirurgical Society, held on December 3rd, Dr. H. A. DES VŒUX read a paper on "Blepsopathia or eye-strain," a subject in which he had taken particular interest for over twenty years. It was fairly generally recognized that minor degrees of

refractive error were of no significance as far as vision was concerned, but the speaker was convinced that they often led to other baneful effects. The strain of constant adjustment told in the main on the nervous system. Headache was a frequent symptom in eye-strain—perhaps the most frequent; but absence of headache by no means negatived eye-strain, and this in many cases led to the true cause of the symptoms being missed.

The two commonest symptoms for which this group of patients sought treatment were fatigue and exhaustion; they tired readily, and suffered from lack of power to concentrate. Faintness and giddiness were also not infrequent symptoms, and actual loss of consciousness might occur. These attacks closely resembled petit mal, and, in the speaker's opinion, many cases of true epilepsy might be due to refractive error. Migraine was another symptom often associated with eye-strain, and was sometimes relieved by suitable glasses; he could not, however, go so far as to say these circumstances were always in the relation of cause and effect. In children, otherwise unexplained dislike for games or for cinema shows, as well as bilious attacks and other minor troubles, could be traced to the refractive error and cured by glasses. The patients were frequently of the "nervous" type, and suffered from depression, pessimism, fears, and panics. A history of train sickness in childhood could in some cases be elicited. If unrelieved the patients might become mental wrecks.

Blepsopathia was essentially a disease of town-dwellers and those whose eyes were incessantly being used—for example, munition workers. The condition was often accompanied by other diseases, and the speaker emphasized the importance of considering eye-strain in any case in which the symptoms could not be accounted for by other and perhaps more obvious causes. It was often a matter of great difficulty to get these patients to have their eyes tested, both on account of their dislike for wearing glasses, and because they said that their eyesight was excellent.

AT a laboratory meeting of the Pathological Society of Manchester held in the Department of Pathology, Manchester University, on December 8th, Mr. J. P. BUCKLEY demonstrated specimens of (1) chronic intussusception of the ileo-caecal region; (2) a peculiar gall stone formed in the cystic duct; and (3) an epithelial odontome. Dr. J. H. DIBLE demonstrated the histology of brain changes in two cases of encephalitis lethargica. Mr. H. PLATT discussed endosteal tumours, and showed specimens of myeloma, endosteal sarcoma, and osteitis fibrosa. Mr. C. ROBERTS demonstrated specimens of (1) renal sarcoma, and (2) traumatic rupture of the spleen. Dr. A. SELLERS, the President, described the histological appearances in Mr. Roberts's case of renal sarcoma, and demonstrated specimens from a case of purulent meningitis due to the meningococcus.

Reviews.

FRACTURES OF THE NECK OF THE FEMUR.

THE seventh fasciculus of the *Annales de la Clinique Chirurgicale du Professeur Pierre Delbet*,[1] is wholly given to an account by Professor ANTOINE BASSET of fractures of the neck of the femur; it contains 22 plates, and a number of other illustrations, and includes a description of the architecture and vascular supply of the upper part of the femur, together with observations on more than 100 cases and specimens. Upon these points the statements correspond with those contained in English textbooks. The interest belonging to the treatise lies in M. Delbet's proposal to fix by a peg the fracture of the neck in old people. Although advocated for years before the war, the application of the procedure to old people has found few imitators in France. A decision on the question can only be formed by considering the history of the cases in which the treatment has been adopted; a number had already been collected by 1914; in an addendum in the place of a preface recent cases are noted which are quoted below. Delbet terms "cervico-trochantériennes" the extracapsular fractures of Astley Cooper, and the latter's intracapsular fractures he names "fractures cervicales," subdivided into "transcervicales," and "décapitations," in which the head is separated at the anatomical neck. It may be objected that these names involve distinctions too precise for the purposes of classification in practice. Moreover, Delbet fully maintains the differences between the extracapsular and intracapsular fracture. The extracapsular fracture unites by bone when properly set and cared for subsequently under the control of examinations by the *x* rays. There is indeed a special objection to fixing this fracture by a screw or other foreign body, for this aggravates the tendency to the formation of an excess of external callus by which the movements of the joint may subsequently be restricted.

Much attention has been given of late years to the cases in young people in which there is separation at the epiphyseal line, or a fracture through the neck near the head. In such cases there are special reasons for fixing the fracture, and there are not the objections which apply to old people. Probably a more open operation is indicated than that employed by Delbet, and there is more need for the abduction recommended by Whitman, always under the guidance of the *x* rays. Delbet simply makes a linear vertical incision on the outer side down to the bone, the middle of the incision being at the junction between the great trochanter and shaft, midway between the anterior and posterior borders. Then, in a recent case, he bores and inserts a screw up the long axis of the neck into the head; in an ununited fracture of long standing he substitutes a bone peg for the screw. Before the operation the patient is examined by using both the *x*-ray screen and taking a photograph, after which marks may be made on the skin over the fracture. Delbet has not actually operated on an *x* ray table under the guidance of the screen, but adopts a special pointer as a guide. This consists of an upright fixed into a broad stand which rests on the operating table beside the patient's limb, and at the top of the upright is an arm which is fixed after the *x*-ray examination so as to serve as a director for the long axis of the neck. It is obvious that the least roll of the patient's pelvis, or of his thigh, also the smallest displacement of the stand, must greatly alter the direction of the pointer. This may explain why the pointer has not succeeded so well in the hands of others. It would seem far better after a preliminary *x* ray examination to operate on an *x*-ray table supplemented by touch.

Cases of Recent Fracture in Old People. (a) Extracapsular.

Obs. 108.—M., 56. "Fracture trochantéro-diaphysaire." Screw, 8 cm. in length, inserted, which afterwards had to be removed. Eleven months later the man wrote that he could walk without a stick and go upstairs, but had a difficulty in descending and in sitting down; he still had some pain, especially at night.

Obs. 109.—M., 62. "Fracture cervico-trochantérienne." Screw 9 cm. inserted. Afterwards complicated by phlebitis and pulmonary emboli, and shortening 2.5 cm. Five and a half months later the man wrote that he could get about for three or four hours, but had to use crutches on account of the oedema and stiffness of the knee following the phlebitis. He could go downstairs more easily than he could go up.

Obs. 112.—F., 77. "Fracture cervico-trochantérienne." Out of bed after five days. Walked with two sticks after six weeks; four months after walked very easily; very good result.

Obs. 116.—M., 75. "Fracture cervico-trochantérienne." Screw 9 cm. inserted thirteen days after injury. A month later the man could walk bearing easily on his leg.

(b) Intracapsular.

Obs. 110.—F., 73. Screw 8 cm. Five months after used one stick in the house and two sticks outdoors. No shortening. Mounted three stories to her rooms and descended by the help of one person and the handrail.

Obs. 111.—M., 74. "Fracture par décapitation." Screw 9 cm. Death thirty days after.

Obs. 113.—F., 59. Screw 8 cm. Three months later moved with short steps by aid of a stick. Failure to do better ascribed to timidity.

Obs. 114.—F., 62. "Fracture transcervicale." Screw 9 cm. After a month up on crutches; after six weeks began to walk unassisted, but weak from age; after two months was able to get about with a stick, put her foot up on a chair, and resume occupation as a *concierge*.

Obs. 115.—F., 58. "Fracture transcervicale." Screw 9 cm. Senile, fat, and quite deaf. In ten weeks could move about by pushing forwards a chair. The progress was slow owing to muscular atrophy and the general condition.

Obs. 117.—F., 76. "Fracture transcervicale." Eight days after injury, shortening 3 cm.; screw inserted. Out of bed in a week; nineteen days after walked round the ward with two sticks, and improvement continued.

Obs. 118.—F., 57. "Fracture transcervicale." After eight days, shortening 2.5 cm. Screw 9 cm. inserted, a little too long, so that it projected some millimetres through the head, and the fragments only partly in apposition. Complicated by phlebitis. After fourteen months began to move supported by a chair, and afterwards to bend the hip up to 45 degrees.

[1] *Annales de la Clinique Chirurgicale du Professeur Pierre Delbet.* No. 7: *Les Fractures du Col du Fémur.* Par Antoine Basset, Professeur agrégé à la Faculté de Médecine de Paris. Paris: Félix Alcan. 1920. (Imp. 8vo, pp. 402; 22 plates. 40 fr. net.)

Cases of Ununited Fracture.

Obs. 120.—F., 65. "Intracapsular." Got up five days after the accident and walked without support, but gradually increasing inability until after ten weeks had no power in limb. Nine months after the accident an attempt was made to fix the ununited fracture by means of a 10 cm. peg from the fibula, but this proved too soft. A year after the accident there was a refracture, and the patient refused further treatment.

Obs. 122.—M., 48. Ununited fracture pegged by 10 cm. of bone taken from the fibula. Six weeks later he left the hospital walking well. Three months later he wrote that he had been subsequently confined to bed owing to pleurisy.

Obs. 126.—F., 75. "Fracture cervico-trochantérienne" seven months before, ununited, unable to walk. Peg of dry ox bone, length 7 cm., diameter 1.2 cm. Got up and walked on twelfth day.

Obs. 127.—F., 66. "Fracture transcervicale." No union after six weeks. A 9 cm. peg from fibula inserted. A month later upon crutches; three months later able to go up and down to her rooms on the first story, and to walk about.

Obs. 128.—F., 60. Ununited fracture for three years; shortening 4 cm.; only able to move about on two sticks aided by a high boot and leather case. Bone peg 9 cm. in length and 1.2 cm. in diameter inserted. Two and a half months later walked with two sticks, without the high boot and case; could sit down and easily go up several stairs. All pain had quite gone, and progress was continuing.

TREATMENT OF SYPHILIS.

DR. H. S. BAKETEL'S new work on *The Treatment of Syphilis*[2] has many merits. The subject is presented under well-arranged headings, and the style is clear and emphatic. The author states that he has written, not for the skilled syphilologist, but rather for the practitioner who is unfamiliar with the "whys, wheres, and hows" of intravenous medication. Yet the book discusses the treatment of syphilis with a fullness that is in excess of that required by the general physician. It is, in fact, a book that will appeal particularly to those who have devoted special attention to the subject of syphilology.

The first few chapters contain a brief account of the history and chemiotherapy of arsenic compounds. The later chapters deal with the indications for the use of such compounds, the technique of administration, and the question of reaction and toxic effects. The author utters a very clear warning against the employment of any but the most scrupulously careful technique when administering "arsphenamine" or its derivative. The ease with which the soluble arsenical preparations may be given has tended to encourage the adoption of slovenly and careless methods, against which the author lodges an emphatic protest.

Amongst the methods of administering mercury the author is inclined to favour the use of the bichloride in ¼ to ½ grain doses. This salt can be conveniently put up in ampoules of gelatine ready for use. The injection is given intramuscularly and repeated every other day, a very careful look-out being kept on the urine. In discussing the use of iodides Dr. Baketel urges that heroic doses can alone produce results. When dealing with gummata as much as 100 grains daily may be required.

The pros and cons of intrathecal injections are carefully weighed, the opinions held by both partisan and opponent of the method being clearly stated. Although the reader is finally left in some doubt as to the attitude he should adopt towards this question, he has undoubtedly been given sufficient indication as to the direction in which salvation lies. Greater efforts must be made to distinguish between the various subtypes of nervous lesion—that is to say, to distinguish the type of case that has been proved by experience to respond to intrathecal injection from that which is known to be refractory. The careful and eminently fair manner in which such a thorny subject as the use of intrathecal injection has been handled is typical of the spirit in which the work has been written. The author is to be congratulated.

MEDICAL ELECTRICITY.

IF the value of any textbook can be judged from the number of editions demanded, then that on *Medical Electricity*,[3] by the late LEWIS JONES, has established its claim beyond any doubt. It has run through seven editions since its first publication, and has now been revised and brought up to date by Dr. L. WOOD BATHURST in an eighth. Substantially it retains its original form, but many valuable additions have been made as a result of the discovery of new methods of electrical treatment, and of the increased knowledge of these, and older methods, brought about by the experience of the war and the treatment of our wounded and disabled soldiers. Great opportunities for advancing and putting on a more sound basis electrical methods have arisen during the past six years; full advantage has been taken of them, and the results are to be seen throughout the present edition.

The original chapter on the apparatus and technique of *x* rays has been dropped. Since *x*-ray work can hardly at the present time be considered as a branch of electrotherapeutics, and as it cannot be discussed with any value within the pages of a short chapter, this became necessary. This does not mean, however, that the effects of irradiation by *x* rays are not alluded to, for there are many references to its value in the treatment of various conditions. A chapter on ultra-violet radiation is new. In it the various types of lamps are described, the action of these radiations is discussed, and the scope of this method of treatment, as regards the diseases it influences and the methods of its application, is pointed out.

With these exceptions the book remains in exactly the same form as before, with the same chapters and headings, and with the same general arrangement; but all the chapters show the hand of revision and the addition of the new material of the past three years. This more especially applies to the addition of much that is new relating to ionization, diathermy, and the electrical testing of muscles, garnered chiefly from the large number of papers published as the result of work carried out in the numerous military hospitals.

WOUNDS OF THE LIVER AND BILIARY TRACT.

PROFESSOR P. SOUBEYRAN'S monograph on wounds of the liver and the biliary apparatus[4] is a product of the war and is largely based on an analysis of 297 collected cases; it deals only with wounds of the organ and does not include rupture of the liver without obvious perforation of the body wall. In peace wounds of the liver are more often due to weapons, such as knives and daggers, than to firearms; whereas in war the reverse holds good; thus among 239 cases in which the nature of the wound was recorded, all but two were the result of shells, bullets, shrapnel, bomb, etc. Shell wounds are nearly twice as frequent as bullet wounds of the liver and their effects are, of course, much more severe. The chapter on the morbid anatomy contains a number of illustrations, including two of President Carnot's liver. In 174, or more than half the 297 cases, organs in addition to the liver, particularly the right lung and the stomach, shared in the wound, a point naturally of the greatest prognostic importance, for the mortality was 26 and 71 per cent. in the contrasted groups. This monograph is divided into three parts—dealing with wounds of the liver, wounds of the biliary tract, and a tabulated list of the cases of these conditions published between 1915 and May 1st, 1918. The total mortality of the 297 cases worked out at a little over 50 per cent. The surgical treatment is fully described and well illustrated by figures, and there is a useful bibliography.

NOTES ON BOOKS.

THE new edition of the *Medical Directory*[5] for 1921 follows in every respect the precedent of its recent predecessors. It is the seventy-seventh edition, and since the beginning has grown very much in size and completeness. The variations, however, from year to year are not conspicuous, and the profession has become so habituated to its form and arrangement that no change is desired. It contains 44,926 names of members of the medical profession; this is an increase of 666 on the number in the previous issue. The numbers in Great Britain, however, appear to be nearly stationary; there is an increase of 46

[2] *The Treatment of Syphilis.* By H. S. Baketel, A.M., M.D. New York: The Macmillan Co. 1920. (Med. 8vo, pp. 177; 14 illustrations. 15s. net.)

[3] *Medical Electricity.* A Practical Handbook for Students and Practitioners. By H. Lewis Jones, M.A., M.D., F.R.C.P. Eighth edition, revised and edited by L. Wood Bathurst, M.D. London: H. K. Lewis and Co., Ltd. 1920. (Demy 8vo, pp. 591; 175 figures. 22s. 6d. net.)

[4] *Les Blessures du Foie et des voies biliaires.* Par P. Soubeyran, Professeur agrégé à la Faculté de Médecine de Montpellier. Paris: Félix Alcan. 1919. (Roy. 8vo, pp. 209; 73 figures. 12 francs.)

[5] *The Medical Directory, 1921.* London: J. and A. Churchill. 1921. 30s. net.

in London, 86 in the provinces, 29 in Scotland, and 65 in Ireland, and a decrease of 18 in Wales; the military services, rather unexpectedly, show an increase of 78. More than half (328) of the added names appear in the list of practitioners resident abroad, chiefly, apparently, in Australia, South Africa, and the Crown Colonies. In this office the occasions for consulting the *Medical Directory* are many on every working day, and we gladly bear testimony to the accuracy of the information given. So high a standard can only be attained by the most painstaking work on the part of the editors.

Burdett's Hospitals and Charities for 1920, being the thirty-first edition of this valuable work of reference, has now appeared.[6] It was in preparation when Sir HENRY BURDETT, the founder and editor, died at the end of April. For thirty years he had been responsible for the work, and to the last took the active interest in statistics which had marked his life. The opening chapter contains tables showing the income and expenditure for the years 1917–18 of the hospitals, dispensaries, homes, charities, and institutions of a like character in the British Isles, of which particulars are given in subsequent sections of the volume. In 1896 the total income of the voluntary charities of which particulars were given amounted to just over £8,000,000; in 1918 the income of those under review was £19,235,000. During the same period the expenditure increased from £7,464,000 to £17,475,000. The future of the voluntary hospital system is one of the most pressing topics of the day, and in the coming year it is probable that many who never consulted it before will have occasion to turn to "Burdett" for information regarding hospital finance. This subject occupies nearly 100 pages of the book; the remainder, containing about 800 pages, gives the customary detailed directory of charitable institutions, both at home and abroad.

The Immortal Caravel,[7] a book of thoughts and aphorisms, by Colonel ARTHUR LYNCH, a former pupil of the late Sir William Gowers (as is mentioned in the *obiter dictum* on "Life") and a man of many and varied experiences, is the third of "The Pilgrim's Books," which are intended to slip into the pocket of the walker or bicyclist, and are for the most part selections from classical writers; thus the second volume contains extracts from Sir Richard Steele and Joseph Addison, and the fourth is "The Noble Tale of the Sangreal," by Sir Thomas Malory. The reader's curiosity as to the meaning of the title is at once satisfied on opening the volume by the inscription, "The Immortal Caravel is Life; its freight—Emotions, Thoughts, Ideals." The text consists of jottings and reflections made by the author on his pilgrimage through this vale of tears. Not that he takes a narrow or depressed view of existence; he is all for a vigorous development of all our faculties and powers and falls foul of John Stuart Mill's advocacy of the superiority of intellectual pleasures, and dubs him a dry academic man with the defects of the "sexual invalid." While recognizing that science is the great directing line of a nation's advance, he insists that it is not all, and that it must be combined with a broad outlook and activity in all respects.

Professor PADDOCK of Chicago has written a small book concerning the care of the prospective mother and her child to which he has given the title of *Maternitas*.[8] He explains that it is not intended in any sense as a medical guide, but rather as a supplement to the advice and instruction which the prospective mother will or ought to receive from her own medical attendant. The advice given is eminently sound and clearly expressed, and it cannot fail to be of use to any woman who is expecting or has just achieved her first child. The book is attractively printed and is illustrated by a number of illustrations worthy of any high-class fashion magazine. Such matters as the mother's clothing and the child's clothing, baths, chairs, and playground, should, no doubt, be dealt with, for correct action in regard to them does not come by instinct; it is a great matter to find an experienced obstetrician who will take the trouble to condescend to simple teaching on such details. This little book may be thoroughly recommended for its purpose.

[6] *Burdett's Hospitals and Charities, 1920.* Founded by Sir Henry Burdett, K.C.B., K.C.V.O. Thirty-first year. London: The Scientific Press, Ltd. 1920. (Cr. 8vo, pp. 1038. 17s. 6d. net.)

[7] *The Immortal Caravel.* A Book of Thoughts and Aphorisms. By Arthur Lynch. London: Philip Allan and Co. 1920. (Fcap. 8vo, pp. 204. 5s. net.)

[8] *Maternitas.* By Chas. E. Paddock, Professor of Obstetrics, Chicago Post-Graduate Medical School etc. Third edition. Chicago: Cloyd J. Head and Co. (Cr. 8vo, pp. 210; illustrated.)

In *Les Antigènes et les Anticorps*, M. NICOLLE,[9] the well known bacteriologist of the Pasteur Institute, has published the substance of the three Harben lectures at the Royal Institute of Public Health. The brochure contains three chapters, dealing respectively with the general characters of the antigens and antibodies, the diagnostic applications of this knowledge, and the therapeutic uses of serums and vaccines. Animal, vegetable, and microbic cells, fluids, toxins, and ferments, have the power of stimulating the production of specific antibodies, and in this connexion are therefore commonly spoken of as antigens. Antibodies which, like the antigens, are colloidal in nature, fall into two groups—namely, the coagulins, such as agglutinins, precipitins, and antitoxins, and the lysins—for example, cytolysins, albuminolysins, and toxinolysins. In the section on the diagnostic application of a knowledge of these bodies, the principles and limitations of agglutination, fixation of the complement and other tests in enteric fever, Malta fever, bacillary dysentery, and so forth, are passed in rapid review. On serological observations the first three of the four types of pneumococci described by the American bacteriologists are accepted, and a fourth type isolated from black troops by Borrel and Kerandel is added. In the concluding chapter, occupying some twenty pages, a summary is given of the therapeutic uses of serums and vaccines.

The health visitor, as we know her in this country, is called in the United States a public health nurse, but may, however, be something more than our health visitor; she may be a district nurse, a school nurse, a tuberculosis nurse, a factory nurse, a visiting nurse, a baby welfare nurse, or, in fact, any kind of social service nurse. With us these are usually officials of a municipality, but in America there is a national organization for public health nursing which works in conjunction with the public authorities. An account of this organization and of various methods of forming a satisfactory service is the subject of Miss ANNIE M. BRAINARD'S book, *Organization of Public Health Nursing*,[10] in which she lays down the general principles that should be followed. These are well considered and the opinions expressed are evidently those of one with considerable experience in the working of a nursing service. Social welfare workers will learn a great deal from this work and, not least, what pitfalls should be avoided and how.

[9] *Les Antigènes et les Anticorps: Caractères général, applications diagnostiques applications thérapeutiques.* Par M. Nicolle, de l'Institut Pasteur. Paris: Masson et Cie 1920. (Cr. 8vo, pp. 80. Fr 4.50.)

[10] *Organization of Public Health Nursing.* By Miss Annie M. Brainard. New York: The Macmillan Company. 1919. (Post 8vo, pp. xii + 144; 11 charts. 7s. 6d. net.)

APPLIANCES AND PREPARATIONS.

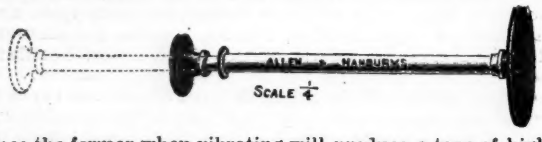
Glass Retractors for Cerebral Surgery.

MR. PERCY SARGENT (London, W.) writes: The accompanying illustration depicts a set of glass retractors, of the sizes I have found to be most generally useful, for employment in place of metal retractors in cerebral work. The principal advantages of glass over metal for this purpose are: (1) The brain beneath the retractor is kept under observation all the time the instrument is being used; (2) the blunt edges of the glass retractors are not so liable to inflict injury as the edges of the ordinary metal spatulae hitherto employed. The retractors have been made to my suggestions by Messrs. Allen and Hanburys, Ltd., 48, Wigmore Street, London, W.

An Adjustable Stethoscope.

Dr. NOEL ALDER (Hove) writes: The "telescopic" stethoscope which I have devised is simply a straight monaural stethoscope capable of adjustment to various lengths by means of two metal tubes which are telescoped in one another. The outer tube carries the ear-piece, the inner terminates in the chest-piece; a screw on the distal end of the outer tube makes it possible to fix the tubes in any position. The idea of an adjustable stethoscope occurred to me after I had seen Dr. W. Gordon's article on the "Differences in Value of Different Methods of Auscultation" in the *Practitioner* of August, 1920. The author draws attention to the curious fact that with the straight wooden

stethoscope aortic regurgitant murmurs are better heard than murmurs of mitral regurgitation, and that the latter, "even when very slight," are more easily perceived with the double instrument. The reason for this apparent paradox must lie in the physical properties of the instruments. It appears to me that the rigid monaural stethoscope acts as a resonator, and therefore increases the sound which has the same pitch as the stethoscope. If the wooden or metal straight stethoscope is lightly held at one end between finger and thumb, and gently struck with a pencil, it will give a sound of definite musical pitch. When the "tone" of the stethoscope happens to correspond with the tone produced by the vibrating cardiac valves or by the contraction of the muscles, we can reasonably expect to obtain the maximum auscultatory effect. In the normal heart the semilunar valves are shorter than the bicuspid flaps;



hence the former when vibrating will produce a tone of higher pitch than the latter. By examining the healthy heart with the "adjustable stethoscope" at various lengths of extension, I find that the mitral sounds—especially the second—are more clearly and loudly heard with the extended than with the closed instrument, but that the reverse holds good for the aortic sounds.

Under pathological conditions, when the valves are considerably deformed, we cannot expect to gather evidence from the resonatory effect of the rigid stethoscope; hence, as Dr. Gordon points out, loud murmurs are better heard with the binaural instrument. But when the lesions are slight and the valves still preserve a degree of elasticity and vibration, the monaural resonating stethoscope gives better results. By virtue of its adaptability for resonance, it can also be used as a differential stethoscope. I was astonished to find how very much more distinct both pulmonary and cardiac sounds grow when the instrument is extended to varying degrees. To obtain the best acoustic effect it is advisable to allow a certain amount of play before fixing the tubes in one position, in the same way as an object is focussed with the screw of the microscope. If the stethoscope were made of sufficiently long tubes, and tuned and marked at appropriate intervals, I think it might be possible to register definite relations between the sounds of the heart. Lack of material and leisure prevents me from going into the matter more fully at present. I therefore venture to submit the "telescopic stethoscope" to the trial and judgement of others who perhaps will establish definite laws concerning the harmonies of the heart.

The instrument has been made for me by Messrs. Allen and Hanburys, Ltd., 48, Wigmore Street, London, W.

Ampoule-Syringes.

The Hoffmann-La Roche Chemical Works, Ltd., have sent us specimens of their "Tubunic" ampoule-syringes for hypodermic medication. Each outfit contains a given dose of the drug in a collapsible tin ampoule hermetically sealed on to a hollow needle, the latter being protected from contamination by a glass cap. The whole appliance is less than three inches long, and it should prove a handy means of giving hypodermic injections in times of emergency. A considerable number of drugs, in solutions of varying strength, are made up in this form; for example, morphine, atropine, ergot, and the Hoffmann-La Roche preparations, digalen, omnopon, etc.

BEIT FELLOWSHIPS.

THE trustees of the Beit Memorial Fellowships for medical research have recently elected seven Fellows, of whom two are women. The trustees decided that the increase in the value of the Fellowships from £300 to £400 per annum, which comes into operation on January 1st, 1921, shall apply both to the newly elected Fellows and to those already holding Fellowships. The usual period of tenure is three years, and research work must be carried on at one of the places recognized by the trustees. The Fellowship of Dr. E. P. Poulton has been extended to a fourth year. The following are the new Fellows, and, briefly stated, the researches they propose to carry out.

THOMAS IZOD BENNETT, M.D., M.R.C.P., Assistant Physician to the Middlesex Hospital, who will investigate in the Department of Physiology and the Bland-Sutton Institute, Middlesex Hospital, the secretory phenomena of the human stomach in health and disease as demonstrated by the fractional method of gastric analysis.

MARY LOGAN COWAN, B.A., M.D., Fellow in Pathology, Medical College, University of Toronto, who will make a study of streptococci, including immunity; this research will be carried out at the Lister Institute.

KATHARINE HOPE COWARD, M.Sc., Assistant in the Institute of Physiology, University College, London, who will make a biochemical investigation into the metabolism, nutrition, and growth of young animals, with particular reference to the so-called deficiency diseases.

FRANCIS WILLIAM FOX, M.Sc., who will investigate the sterol metabolism in diseases involving malnutrition, this research being undertaken in the chemical laboratory at St. George's Hospital and the Physiological Laboratory at South Kensington.

DANIEL THOMAS HARRIS, M.B., Ch.B., B.Sc., Assistant in the Institute of Physiology, University College, London, who will investigate "tonus," with special reference to the vascular system.

WILDER GRAVES PENFIELD, M.A., M.D., who proposes to study microscopically, in the pathological laboratory of the National Hospital for Paralysed and Epileptic, the nervous paths which undergo degeneration after the removal of brain tissue.

HOWARD WILLIAM COPLAND VINES, M.A., M.B., B.Ch., Fellow and Director of Medical Studies, Christ's College, Cambridge, who will carry out researches on the blood, in the Medical Schools, Cambridge.

VENEREAL DISEASE PROPHYLAXIS.

THE Medical Women's Federation (9, Clifford Street, New Bond Street, London, W.1) has issued the following note on immediate self-disinfection as a method for preventing the spread of venereal disease among the civil population:

"This method has recently been brought to the notice of the public. It is considered by some persons as capable of practically exterminating venereal disease and it has been very pertinently pointed out that if the medical profession really does possess knowledge capable of doing away with this scourge, it is bound to disseminate such knowledge as widely and as efficiently as it can. A society has been formed, one of whose objects is the widespread dissemination of careful and minute instruction for self-disinfection before and after sex intercourse.

"The Medical Women's Federation has carefully considered this question in all its bearings, and, apart from the serious moral responsibility involved, is of opinion that on purely physical grounds there are very serious objections to this method, and to teaching its use to the public.

(*a*) It would be most undesirable to teach young boys and girls to tamper with their own sex organs, yet, if it were efficient, the method would have to be carefully and minutely taught to quite young boys and girls, even before puberty.

(*b*) It would not be desirable to teach every married woman to regard her husband as possibly suffering from venereal disease and to take precautions accordingly; nor would it be possible for every bride to carry out the instructions given, yet disease among married women forms a large percentage of the whole.

(*c*) The Medical Women's Federation believes that these methods are impossible for the majority of women to practise as recommended. Though a woman may be told to lubricate the vulva, in very few instances would the vagina and cervix be effectively treated. As is well known, infection, both in the case of gonorrhoea and syphilis, may take place at the cervix. The young are the most sought after, and the most readily infected, and hence they are the most dangerous as regards the further spread of infection, and they are the people who would find it most difficult to carry out the method.

(*d*) The means advocated, if properly carried out, are contraceptive. The Federation is not prepared to endorse the introduction of contraceptives broadcast to the public or to recommend contraceptives for 'self-disinfection' when the action of such substances may not even be known to the user.

"These methods are by no means certain to prevent infection in any given individual, especially as it would be impossible to ensure that they were really efficiently applied. We can refer our readers to cases in which the most careful following of this method failed to protect. We therefore regard it as unfair to convey the impression of safety where real safety does not exist. Promiscuous intercourse cannot be made safe, and anything that tends to assume its safety may tend to increase it, and may thereby increase the incidence of the disease."

UNDER the will of the late Mr. Peter Williams the Hospital for Consumption, Brompton, receives £2,000 and St. Mary's Hospital and the North London Hospital receive £1,000 each.

DR. A. J. MCCLOSKY, acting principal medical officer in the Federated Malay States, reports a striking diminution in the number of cases of beri-beri treated during the past twelve months. In corresponding periods the total numbers of hospital cases treated in Perak, Selangor, and Negri Sembilan were 1,830 and 383 in 1919 and 1920 respectively. These figures may be correlated with recent food control and rationing, more particularly of rice. Rangoon rice has been substituted for the more highly polished Siam variety, and a reduced rice ration has been supplemented by other articles of diet, such as sweet potatoes and wheat flour.

British Medical Journal.

SATURDAY, DECEMBER 18TH, 1920.

PLAGUE, CHOLERA, AND YELLOW FEVER.

THE Ministry of Health has just published a report on the Progress and Diffusion of Plague, Cholera, and Yellow Fever throughout the World, 1914–1917, by Dr. R. Bruce Low,[1] who for twenty-three years has furnished similar reports to the Medical Department of the Local Government Board. Formerly these valuable summaries were published annually in the Reports of the Local Government Board, but war conditions rendered this impossible by interfering with the collection of data and in other ways, and accordingly the present report covers the events of, roughly, the first four years of the war. Although the progress made in public health during the last half-century makes it improbable that any of these three diseases will ever seriously menace the health of Great Britain, the accumulation of knowledge thus provided is of the greatest value to those responsible for the well-being of the Empire, for plague and cholera still cause an enormous loss of life in our dominions overseas; and, as Sir George Newman remarks in his introduction, of all means of prevention the spread of knowledge and education in hygiene is the most effective. These summaries not only enable comparisons to be made between the behaviour of disease in the past and at the present time, but they supply material for the future study of the epidemiology, etiology, and prevention of disease. As no other central health authority in Europe or elsewhere has provided such a systematic compilation of data arranged on a uniform plan for such a long period of years, and as in all probabilty this is Dr. Bruce Low's last contribution to the series, it is only right to emphasize his services to the health of the Empire.

Although the statistics in Dr. Bruce Low's report do not profess to go beyond the end of 1917, there are incidental references to events since that date, such as Noguchi's researches on *Leptospira icteroides* as the cause of yellow fever, the incidence of plague in India up to the end of the first half of 1919, and the occurrence of cholera in Palestine early in 1918. The records of the prevention of cholera, and especially of yellow fever, are more encouraging than those of plague; in fact, the well-marked diminution of yellow fever during recent years affords reasonable grounds for thinking that it may now be included among the diseases that are disappearing as a result of medical science and the advance of civilization. Considerably more than half of the volume is devoted to plague, and, as in former reports, its incidence in each country, with the attendant circumstances and, when possible, the preventive measures adopted, are described in detail. In India, the chief reservoir of the infection, 9,841,896 deaths from plague were reported in the twenty-two years ended 1917; and, in spite of all the work that has been done, there is little or no evidence that its ravages will cease; indeed, the plague year July, 1917, to June, 1918, with a mortality of 820,292, was one of the worst experienced for ten years. It should, however, be remembered that 1917 had the highest rainfall on record, and that excessive humidity with a certain range of temperature favours the prevalence of fleas. It is noticeable that the districts of India most subject to plague are the least ravaged by cholera, and that Ceylon escaped any outbreak of plague until it appeared in 1914 in Colombo, the reported cases for the four years under review being 413, 139, 291, and 227.

Cholera, which accounted for 8,247,846 deaths in India in the twenty-two years ended 1917, has become less prevalent than formerly, and this reduction is to some extent due to measures taken to prevent contamination of the water supplies. Human cholera-carriers, especially in connexion with fairs and pilgrimages, play an important part in the spread of the disease, and accordingly special precautions are now taken at nearly all the greater festivals and at most of the frequented shrines to prevent excremental pollution of water supplies, bathing places and the surface soil, as well as to avoid contamination of food by flies. The greatly diminished number of yellow fever outbreaks during the years 1914–17 is due to several factors: in addition to the eradication of the disease from the chief endemic centres, such as Havana, Rio Janeiro, Vera Cruz, and Panama, by the antimosquito campaign, attention is directed to two other causes. War conditions exerted a favourable influence by interfering with the transport of visitors to endemic areas, and so restricted the supply of non-immune persons who, by contracting the disease, would serve to infect successive generations of stegomyia; thus yellow fever would tend to disappear spontaneously from failure of the human host. A third factor is the substitution of steamships for the old sailing vessels, which were suitable breeding places for mosquitos. The fear that the opening of the Panama Canal would be followed by a spread of the disease has not been justified.

[1] The Progress and Diffusion of Plague, Cholera, and Yellow Fever, throughout the World, 1914-1917. Reports on Public Health and Medical Subjects, No. 3. Ministry of Health. Published by His Majesty's Stationery Office. 1920. (Pages 276. 7s. 6d. net.)

ARTIFICIAL LEGS.

IT is not, perhaps, to be expected that any article for personal use supplied by a Government department will be accepted by retired officers and pensioners universally without grumbling; it may be assumed also that those who are well satisfied will keep quiet, while those who are dissatisfied, even if they represent only a small minority, may create an effect on the mind of the public quite out of proportion to the extent of the grievance. The correspondence on artificial limbs which has recently appeared in the *Times* is a case in point. It is certain that a very large number, and probable that an overwhelming majority, of pensioners are well satisfied with the limbs supplied by the Ministry of Pensions, but they do not feel called upon to write to the daily papers and say so. Those who are dissatisfied and have constituted themselves the mouthpieces of the dissatisfied do, on the other hand, make themselves heard.

The complaints of the writers of these letters appear to fall under one or more of three heads: (1) That the limbs supplied by the Ministry of Pensions are needlessly heavy; (2) that consequently they will produce curvature of the spine; and (3) that the metal leg which is made and sold by one particular firm at a high price is not supplied to every pensioner who asks for it.

The second complaint may, we think, be dismissed at once as of little importance. "Curvature of the spine" may sound terrible in lay ears, but experience of such inequalities of limbs as result from hip disease and paralysis has taught the medical profession that

such secondary curvatures are of little importance in themselves. More or less lateral curvature is probably inevitable when—as, for instance, after a high thigh amputation—great inequality of muscles and of weight is a permanent result, no matter what artificial limb be worn.

The first complaint—that the limbs supplied are too heavy—is more serious. We suppose there can be no question that for amputations above the knee, at any rate, an artificial limb cannot be too light, provided it is strong enough; but we must guard against exaggeration, and we feel bound to remark that the figures quoted by Mr. Ponsonby, one of the correspondents, are misleading. It is easy to ascertain what is the weight of each type of limb supplied by the Ministry of Pensions, and we have made it our business to do so. We have satisfied ourselves that the only type which approaches in weight to 9 lb. is that made for exarticulation at the hip, and, so far as our information goes, this amputation has not yet been successfully fitted by the makers so warmly advocated by Captain Baird and Mr. Ponsonby. For amputations below the knee no light metal limb has yet been put forward which has any advantage in weight or otherwise over those of wood, leather, and steel.

The difference in weight between the lightest metal limb and the wooden limb for the same amputation does not amount on the average to more than 1½ lb. To compare limbs weighing respectively 10 lb. and 5 lb. shows a disregard of accuracy which must cause hesitation in accepting all Mr. Ponsonby's conclusions. Nevertheless, there are cases of amputations high in the thigh, and cases of longer stumps complicated by other disabilities, in which the diminution of weight by only a pound or two may make all the difference. These patients should, we think, have the lightest possible limbs, notwithstanding the undoubted fact that others with equal disability may, after trial of both, prefer the rather heavier wooden limb to that so much praised in the *Times* correspondence.

Bearing in mind, then, that the counsel for the plaintiff has much overstated his case and that counsel for the defence has not yet been heard, are we to consider that a prima facie case against the Ministry has been established on the third head? We understand that supplies of a light metal limb which has been designed in the experimental workshop of the Ministry will shortly be forthcoming, and that, in addition, other light limbs are being tried, so that it may be hoped that the problem is in a fair way of solution.

It is easy to imagine that the Ministry of Pensions may have experienced insuperable difficulty in any attempt to persuade the Treasury to approve the expenditure of nearly £100 for each of a large number of limbs, and also that the Ministry may have been properly reluctant to place itself in the hands of any one firm; but, making every allowance for difficulties during the war and for the extent of the artificial limb problem generally, we cannot but feel that much valuable time has been lost and a situation allowed to grow up which might have been prevented by more business-like methods in the Artificial Limb Department of the Ministry of Pensions.

THE STATISTICS OF FOOD PRODUCTION AND CONSUMPTION.

THE importance of the United States of America as producers and exporters of foodstuffs has been for many years capital, and during the war our success, perhaps our national existence, depended upon the capacity of the United States to provide us with food. In the year 1911–12, 1,791,483 metric tons of grains and grain-products were exported, in 1913–14 more than 3½ million metric tons, while in 1916–17 the total reached 4,762,348, and in 1917–18, when the reduction of and demands upon shipping had nearly reached a maximum, the total exceeded 2½ million tons. A study of the details is therefore interesting, and, in view of the grave outlook, practically valuable. Professor Raymond Pearl's reputation as a scientific statistician and the exceptional facilities he enjoyed during the war as Chief of the Statistical Division of the United States Food Administration, guarantee the accuracy of his work,[1] which should appeal to a wide circle of readers.

Professor Pearl deals with three pre-war years and four years of war. He classifies human foodstuffs as (*a*) primary, plant materials and animal products other than those from animals fed on primary stuffs and fodders; and (*b*) secondary—that is, edible products of animals used for human food which have been nourished on primaries. American production of primary foods increased up to 1915–16, then declined, and by 1917–18 had again reached the pre-war level. The production of secondary foods increased throughout the war years. A few large items account for the bulk of the food values: grains account for nearly 42 per cent. of the average annual total calorie production, meats for 24.5 per cent., and dairy products for 14.7 per cent.

Although we are rightly accustomed to look upon the United States as a food-exporting nation, the imports of primary foods amounted before the war to as much as 20 per cent. of the calorie value; a large item is of course that of saccharine materials, reaching, in 1917–18, more than 3 million metric tons and more than 12 billion calories. Food exports in 1914–15 were about double the pre-war quantity. Thereafter the exports of primaries declined, approximating to the pre-war level by 1917–18; exports of secondaries, however, rose so that the average of total food exports over the war years was in excess of the pre-war mean. Taking the annual average of the three pre-war years as 16½ billions of calories, we have for each war year 33, 30, 26, 22, approximately.

The figures of consumption show little change in the *per capita* rates over the period, the increase in the consumption of calories running nearly parallel with the increase of population. The presumed effects of the Food Administration's campaign on the consumption in 1917–18 are interesting. Little or no change was effected in the calorie use, but a large reduction (in the case of wheat nearly 11 per cent.) in the use of articles which the Administration desired to economize, the required balance of energy being made up by the employment of recommended substitutes. The daily consumption per "man" averaged 4,288 calories (derived from 120 grams protein, 169 grams fat, 541 grams carbohydrate), but this calculation covers not only the food eaten but also that wasted by loss in cooking, garbage, and so on. Upon this point Professor Pearl justly remarks that "to make these gross consumption figures materially less would require a profound readjustment of the dietary and culinary habits of the people, fixed by centuries of usage." A book such as this, containing large numbers of statistical tables, is not precisely light reading, but it is a valuable contribution to knowledge, and we should like to see a similarly documented and authoritative study of food production and consumption here.

[1] *The Nation's Food: A Statistical Study.* By Raymond Pearl, Ph.D., Sc.D., LL.D. Philadelphia and London: W. B. Saunders Co., Ltd. 1920. (Med. 8vo, pp. 274; 42 figures. 16s. net.)

THE TOXIC EFFECT OF SALVARSAN.

DURING and as a direct effect of the war toxic jaundice became unduly prominent in this country. In the first instance the varnish or "dope" used for covering the wings of aeroplanes, on account of the contained tetrachlorethane, caused the grave jaundice and hepatic lesions described by Drs. Willcox, Spilsbury and Legge; but directly this was recognized, preventive measures were successfully adopted. The same satisfactory result was obtained in the case of the more widespread toxic jaundice among workers in trinitrotoluene, a subject on which Dr. B. Moore did such yeoman service. The toxic effects of salvarsan, on the other hand, continue to attract attention and present problems on which the Medical Research Committee, in February, 1918, set up a special committee. The first report (1920) of this Salvarsan Committee, which was mainly devoted to the methods of manufacture, biological testing and clinical administration of salvarsan and its substitutes, referred to outbreaks of toxic jaundice attended by a high fatality in certain military hospitals in this country. Two explanations of this salvarsan jaundice may be mentioned: The first, put forward by Professor S. MacDonald of Newcastle-on-Tyne, invokes microbic intervention, and is to the effect that either the drug renders the tissues, and particularly the liver, unduly liable to bacterial invasion, or alternatively, that bacterial infection of the tissues makes them specially vulnerable to salvarsan. The other hypothesis attributes the acute hepatic changes solely to the arsenical preparation, and the occurrence of localized outbreaks of fatal jaundice to circumstances attending the administration of the drug and possibly to lack of due precautions in size and spacing of the dosage. The Salvarsan Committee of the Medical Research Council has just issued two reports[1] bearing on the solution of this question. Dr. Ainley Walker, Lecturer on Pathology in the University of Oxford, carried out a careful research in order to determine what influence, if any, the administration of neosalvarsan and novarsenobillon has on the development and persistence of immunity in rabbits, as indicated by measurements of agglutinins. The rabbits were generally immunized by single small intravenous injections of standard cultures (dead bacilli) of one or other of the enteric group, and the salvarsan was in different instances given at different times—namely, before the inoculation of the bacterial cultures, during the period of rapid rise in agglutinin production, during the period of sharp fall, and during the later period of (expected) gradual fall in the agglutinin curve. Dr. Ainley Walker finds that in rabbits the administration of salvarsan does not prevent response to infection of the normal type, as measured by agglutinin production; on the contrary, it commonly appears to induce fresh, and sometimes prolonged, activity in the agglutinin-forming mechanism at a time when the normal response would otherwise be on the wane. As far as these results go—and, of course, they only deal with a single kind of response—they do not support the hypothesis that infection plays a part in the production of salvarsan jaundice. The other report is of the thorough and elaborate nature characteristic of Professor H. M. Turnbull's work, and deals with the minute morbid changes found in eight cases of fatal salvarsan jaundice. Each case is described in detail and then the collected data are summarized. In all the cases the liver was much more affected than the rest of the body by severe degenerative and necrotic changes, which are admirably shown in the successful plates; in one case only were bacteria found, and these were Gram-positive bacilli with the appearance and distribution of the micro-organisms often present in tissues that have not been removed and fixed without delay; spirochaetes and evidence of malaria were absent. There is an interesting comparison between the hepatic lesions found and those produced by spirochaetes (*pallida* and *icterohaemorrhagiae*), yellow fever, phosphorus, trinitrotoluene, and tetrachlorethane; and it is shown that the changes in the eight fatal cases resemble those induced by the chemical poisons and differ from those due to infection. There is a close similarity between the effects of salvarsan and trinitrotoluene, but there are differences which, however, are adequately explained by the assumption that in the salvarsan cases the poison was constantly of greater virulence or administered in greater dosage. Though expressed with wise caution, these results are also adverse to the hypothesis that infection is concerned in the hepatic changes.

[1] Privy Council: Medical Research Council. Special report series, No. 55. Reports to the Salvarsan Committee. I. Results of the Examination of Tissues from Eight Cases of Death following Injections of Salvarsan. II. The Influence of Salvarsan Treatment on the Development and Persistence of Immunity, as Indicated by Measurements of Agglutinins. Pages 69, plates 6 (2 coloured), charts 6. (Published by H.M. Stationery Office. London. 1920. 3s.)

CENTENARY OF THE ACADÉMIE DE MÉDECINE.

THE Académie de Médecine was founded by Louis XVIII on December 20th, 1820, as the Académie Royal de Médecine, mainly at the instance of Baron A. Portel. It is celebrating its centenary next week from December 20th to December 23rd. It succeeded the Royal Society of Medicine and the Royal Academy of Surgery; it was instituted to advise the Government on all matters relating to the public health, and was directed to concern itself in the investigation of every subject which could contribute to the progress of the different branches of the healing art. It has one hundred ordinary members divided into eleven sections, but the sections do not meet separately. It has also national and foreign correspondents. Among the foreign associates, who number twenty, are Sir Patrick Manson and Sir Almroth Wright. The President this year is M. Laveran, the discoverer of the malarial parasite. In response to invitations issued to this country the Royal Society of Medicine has nominated Sir A. E. Wright, the Royal College of Physicians of London Sir Humphry Rolleston and Dr. R. O. Moon, and the Royal College of Surgeons of England Sir J. Lynn-Thomas, Sir D'Arcy Power, and Mr. Charles Ryall. Edinburgh is sending a strong contingent: the Royal College of Physicians is represented by Sir Robert W. Philip (president) and Dr. J. Stewart Fowler (secretary); the Royal College of Surgeons by Dr. George Mackay (president) and Dr. Alexander Miles (secretary); the University of Edinburgh by Professor Lorrain Smith, dean of the faculty of medicine, and Professor Alexis Thomson.

THE MIDDLESEX HOSPITAL CHAIRS.

THE remarkable developments which have taken place during the last year or two in the arrangements at the Middlesex Hospital Medical School for teaching the preliminary and intermediate sciences have naturally excited a good deal of attention and roused interest in the further development of the school on the clinical side. A gift of £20,000 from an anonymous donor to endow a university chair of physiology at the school has just been announced; it follows on the gift by Mr. S. B. and Mr. J. B. Joel at the beginning of this year for the endowment of a chair of physics. Professor Russ was appointed to this chair, and a little later Professor McIntosh was appointed to the chair of pathology, Professor Swale Vincent to that of physiology, and Professor Lazarus-Barlow to that of experimental pathology. Further, the title of university professor of anatomy has been conferred on Mr. T. Yeates, Dr. W. B. Tuck has been appointed lecturer in chemistry, and Professor Ainsworth-Davis lecturer in biology. A university chair of radiology has also been established. These developments have been carried out in close consultation with the University of London authorities, and it may be taken that the policy of the school has the approval of the University. In the past medical schools have in many instances been able to carry on their work only through the self-sacrifice of members of the staffs,

who have received totally inadequate remuneration. The need for whole-time officers in the various scientific departments has long been recognized, and the increase in the cost of living has made it essential that salaries should be increased. Medical education and research stand in need of financial aid by way of endowment, and the maintenance of university chairs in the scientific departments gives promise of growth on sound foundations. The chairs already instituted show that the authorities of the Middlesex Hospital Medical School are determined that it shall be a complete school, and in view of the line taken by the University Grants Committee this is a significant circumstance. An intimate relation of the scientific departments to the whole school will stimulate workers in them to search out the application of the lessons of pure science to medicine, and will constantly remind the student and his teacher of the relation between the various sciences and medicine. The physicist already co-operates in the treatment of patients, and two hospitals in London—the Middlesex and St. Bartholomew's—have appointed a physicist on the hospital staff. The importance of chemistry to medicine has long been recognized, and the importance of linking up the departments of physiology and anatomy with clinical medicine is now more generally appreciated. The policy to be adopted by the Middlesex Hospital Medical School with regard to clinical teaching does not seem yet to be clearly defined, but the question will probably be attacked from a somewhat different point of view from that which has led to the establishment of clinical units with whole-time officers. We are told that at the Middlesex Hospital the opinion is that the best men for clinical work and teaching can be obtained only if the duties of their offices do not debar them from private practice. It is, however, to be hoped that the medical schools will receive grants to enable them to give remuneration for clinical teaching and research on a scale sufficient to make it unnecessary for the junior members of the staff to seek other hospital or paid public appointments to enable them to make both ends meet. It is urged also that if these junior members received adequate remuneration they would be able to devote more time to investigation and teaching. It would be necessary to have funds also for the payment of whole-time juniors to carry out thoroughly the pathological investigations required by the various hospital "firms," which would be the equivalent of "units." An application is, we understand, to be made to the University Grants Committee to recognize the system worked out at the Middlesex Hospital; it does not conform completely with the unit system as outlined in the committee's memorandum, but it seems to us that at the present time, when clinical units are still in an experimental stage, other lines of development might well be encouraged.

MEDICINE AND LAW.

THE annual dinner of the Medico-Legal Society was held at the Holborn Restaurant on December 10th, under the chairmanship of Lord Justice Atkin, president of the society. Lord Russell, in proposing the toast of "Medicine and Law," said he noticed from the daily press that Mr. Justice Darling and Sir Robert Armstrong-Jones lately came into conflict at the Old Bailey with reference to the state of mind of a prisoner charged with murder. The case illustrated one of the very important matters with which the Medico-Legal Society was formed to deal. A joint committee of lawyers and doctors, of which he was a member, sat a few years ago, when an endeavour was made to lay down some kind of new or modern ruling instead of the ruling in McNaghten's case, but it was not adopted by the law. Sir William Hale-White responded for the medical profession, and the President of the Law Society responded for the Bar. Sir Henry Duke, in proposing the toast of the Medico-Legal Society, said that though the administration of justice was great the realization of justice to be administered was greater. The controversy as to whether His Majesty's judges in the Strand or the medical profession in their centres of thought should decide what was the governing principle in criminology with regard to lunacy had itself to be decided in other places. If there was to be a new rule in such a matter it would have to be decided in a higher forum, and that was in the minds of the people and in the Legislature, which ought to give it strength. There should be no doubt upon a rule affecting matters of life and death. The members of the society, with the co-operation of its legal and medical members, could so influence the public mind that if the matter was as vital as many believed it to be they would without difficulty bring it to an issue and to a settlement. He urged the co-operation of the legal and medical professions in matters of common interest. The President, in the course of his reply, said there could be no two more important factors in the well-being of the State than justice and health; they were both doing their best in their respective professions to promote the one and the other, and the Society was endeavouring to serve both.

LEFT RECURRENT LARYNGEAL PARALYSIS IN MITRAL STENOSIS.

AMONG the less familiar signs of mitral stenosis are two closely associated with the enlargement of the left auricle—namely, compression of and resulting stridor over the left bronchus, which must be looked for to be detected, and paralysis of the left recurrent laryngeal nerve, which may become obvious from alterations in the voice. The occurrence of paralysis of the left recurrent laryngeal nerve in association with mitral stenosis was first reported by Ortner in 1897, and in a recent paper on the subject Garland and White[1] have collected 61 recorded cases, and in addition tabulate 9 cases detected during eight years at the Massachusetts General Hospital, Boston. It is probably, like many other unobtrusive signs, more frequent than is generally recognized. There are at least two points of interest about it: in the first place, the diagnosis from other causes of paralysis of the left recurrent laryngeal nerve, such as an aneurysm, often a small or even a latent one, of the aorta near the entrance of the ductus arteriosus, enlarged tracheo-bronchial glands, carcinoma of the oesophagus, syphilitic mediastinitis, and infective and toxic neuritis of the left inferior laryngeal nerve, must be considered, and for this distinction skiagraphy is of course invaluable. In the second place, the mechanism by which the paralysis is brought about has given rise to some discussion; the obvious and therefore general explanation that the dilated left auricle exerts direct pressure on the nerve which is thus destroyed has been controverted by Fetterolf and Norris, who argue that the nerve is squeezed between the left branch of the pulmonary artery and either the aorta or the ductus arteriosus, and that a pressure neuritis, not destruction, is produced. Garland and White accept this interpretation, and also agree with Lian and Marcorelles that mediastinitis or the formation of a thrombus in the left auricle or its appendix may occasionally be responsible. Auricular fibrillation, which was present in four out of their nine cases, is also regarded as an important factor, both because the auricle is thus permanently ballooned out and because thrombosis readily occurs in a fibrillating auricle.

INSURANCE FOR MEDICAL MEN.

AT the meeting of the Committee of the Medical Insurance Agency on December 2nd, the chairman, Dr. G. E. Haslip, reported that the business done during the nine months ending September 30th, 1920, showed satisfactory progress in practically all classes of insurance, in so much that the increased revenue from new business had more than compensated for the increase which had been inevitable in the

[1] J. Garland and P. D. White, *Arch. Int. Med.*, Chicago, 1920, xxvi, 343-351.

expenses of the Agency. In arranging life policies the Agency deals only with offices of high standing, and is able to advise applicants as to the adjustment of the terms of its policy to meet any special conditions of the insurer. The number of new life policies negotiated in the nine months was 86, as compared with 41 in the corresponding period of 1919. At the meeting of the Committee last May the chairman had to report that there had been a general increase in the rates for motor car insurances, but in spite of this the Agency well maintained renewals and new business continued to be steady. The income from accident and miscellaneous insurances showed an increase. As the Agency works on a 5 per cent. basis it will not be affected should the Government take over insurances under the Workmen's Compensation Acts, but in that event it would not be able to make any returns to the insured. The Agency was founded in the hope that, after making a rebate on premiums, and after paying all expenses, it would have a surplus to devote to medical charities. This hope has been fulfilled. At this meeting it was able to allot £557 10s. out of the surplus in hand, making a total for 1920 of £1,015. This sum was divided as follows: To the Royal Medical Benevolent Fund and the Royal Medical Benevolent Fund Guild £175 each, to Epsom College Benevolent Fund £157 10s., to the Royal Medical Benevolent Fund Society of Ireland and the Birmingham Medical Benevolent Society £25 each. As a result of this, the total sum allocated by the Agency to medical charities since its foundation has reached £6,435. The grants made to the funds of Epsom College entitle the Agency to a certain number of votes at each election to foundation scholarships. If medical men know of boy candidates whose cases deserve special consideration they are asked to communicate with the Treasurer of the Medical Insurance Agency, 429, Strand. Dr. Squire Sprigge, Editor of the *Lancet*, has kindly undertaken to forward any applications which might reach him.

CHARMS.

THE belief in the efficacy of charms not only to ward off the evil eye and prevent ill health and other misfortunes, but also for the cure of disease, is very old and still very widespread, evidences of its existence cropping up not very infrequently in this country. In the current number of *Blackwood*, Mr. Walter Harris gives a very interesting example of its survival in Morocco in an extreme form. He is writing of the "good old days" before the French occupation, when the people were ignorant and the Sultan tyrannous, and he says that even then the Moor was often ready to accept the assistance of European doctors; but his faith was half-hearted, sufficient to accept medicines if given free, but rarely of the kind to pay a fee. Often the medicine was not taken, and in his inmost heart the patient had sometimes far more faith in the good that might accrue from the presence of the doctor than from the remedies he recommended. As one woman said, when caught in the act of throwing away the medicine ordered for her husband: "The doctor's presence is sufficient without his drugs. His knowledge is what is useful—who knows what his drugs contain?" He gives one striking instance of belief in charms in which he was an actor. He met an old native who had a terrible sore on the calf of one of his legs, and asked him whether he would not go to the hospital to be treated. The man willingly assented, and Mr. Harris wrote a line on a visiting card to the doctor in charge. Two days later he met the patient again, his leg bound up with a filthy rag: he had not, he said, been to the hospital; there was no need as the leg was already better. Mr. Harris insisted on seeing the sore, and, bound across the open wound, under the reeking bandage, was his visiting card. Asked to explain why he put it there, the man said, "Your kindness and the knowledge of the doctor to whom it was addressed is sufficient to cure, so I applied the card to the sore: it is already better." It was, in fact, worse, so Mr. Harris took the man to the hospital. There he was at once relieved, and continued to attend until his leg was healed. But he adhered to his belief in the charm—"Your card was sufficient. It would have got well just the same if you had allowed me to leave it there." The Moor, however, can take a very practical view, and Mr. Harris describes, as we judge from personal observation, the way in which the large red ant is used for closing skin wounds. Holding the two edges of the skin together, so as to leave a little of both lips protruding, a living red ant is applied to the wound. The ant closes his strong mandibles on the skin, and is promptly decapitated with a pair of scissors; four or five are applied to a wound "of a few inches in length." By the time the ant's head falls away the wound has closed. The Governor of Marrakesh told Mr. Harris that he insisted on his men using this method in preference to stitching, as he had found that with the latter method the stitches, not being disinfected, formed sores. To-day, says Mr. Harris, the people flock in thousands to the hospitals and dispensaries which the French have opened throughout the length and breadth of their protectorate.

DR. FRANCIS R. FRASER has been appointed Physician to St. Bartholomew's Hospital, Director of the Medical Professorial Clinic at that hospital, and Professor of Medicine in the University of London. The appointment is for four years in the first instance. Dr. Fraser succeeds Sir Archibald Garrod, now Regius Professor of Medicine in the University of Oxford.

AT a meeting of the General Council of King Edward's Hospital Fund for London held on December 14th, with the President, H.R.H. the Prince of Wales, in the chair, grants amounting to £190,000 were awarded to hospitals, convalescent homes, and sanatoriums for the present year. This is the third distribution made by the Fund in 1920. On June 22nd an emergency distribution of £250,000 was made out of the accumulated funds in order to assist the London hospitals, having regard to their pressing maintenance needs. On July 23rd another sum of £250,000, entrusted to the Fund by the British Red Cross Society and the Order of St. John, was distributed in aid of schemes of extension or improvement at hospitals able and willing to treat ex-service men.

Medical Notes in Parliament.

MINISTRY OF HEALTH BILL.

THIRD READING IN THE COMMONS: REJECTION BY THE LORDS.

IN an all-night sitting which lasted from 3 p.m. on Wednesday, December 8th, until nearly 7 next morning, the Report and Third Reading stages of the Ministry of Health (Miscellaneous Provisions) Bill were taken in the Commons. Protests that this should be the sole opportunity for detailed consideration by the whole House of such a large measure, involving housing, financial, and hospital proposals, were met by Dr. Addison with the regretful reply that circumstances compelled this course. The attendance as the hours wore on declined to about 100 members. As a test of sustained mental power the discussion reflected credit on those legislators who joined in the controversy, and, as might be expected, medical men, with their experience of night work, gave a good account of themselves. It should be pointed out, moreover, that the bill had been closely debated and relieved of many of its features in Grand Committee so as to make it more easily acceptable, and therefore the grievance of dealing with it at such a time was not so serious as it otherwise would have been.

The first matter was the question of new clauses. The Solicitor-General for Ireland (Mr. D. M. Wilson) submitted a lengthy addition to harmonize the working of the bill in Ireland. Curiously enough, the measure was so framed that by the statement that it did not include Scotland it carried application to Ireland, but, as it stood, all the machinery would have had to be directed by the Minister

of Health for England, and therefore a number of variations were necessary in order to put things straight.

In regard to the clause to enable county councils to take over existing workhouse infirmaries, Mr. Wilson said that under an old Act of 1838 the surgeons of Irish county infirmaries were paid a salary of £75 a year, and it was necessary to insert a subsection to provide that they could increase this amount. Instead of the references to the Lunacy Acts, 1890-1911, it was agreed that those for Irish purposes should be to the Lunacy (Ireland) Acts 1821-1901. Complaint was made, however, as to the increasing habit of legislating by reference to Acts of Parliament about which members of Parliament knew nothing. The new clause was agreed to.

Another clause, moved by Dr. Fremantle, to enable the Minister of Health to advance money on loan to public utility societies, with security against charge on the rates, brought from Dr. Addison the reminder that in order to reduce the proportions of the bill a large number of clauses had been cut out in Committee by him and that in the circumstances he could not see his way to accept this or any other new clauses, although he thought this particular proposal was excellent. After considerable discussion the clause was rejected by 208 votes to 58, and on the Speaker's advice other projected new clauses were not submitted. The bill was then taken as amended in Committee upstairs.

Incipient Mental Disorder Clause.

On Clause 8 (formerly Clause 10) for the treatment of incipient mental disorder, Mr. Myers made a motion for rejection. He said that in the opinion of the Labour party the only way of dealing with cases of this kind was for the State to take over the responsibility for giving the treatment needed. The proposal did not admit a farthing of financial responsibility on the part of the State. It said: "Some other persons may undertake this responsibility. We give them no backing, no support in any direction whatever." Colonel Wilson, replying for the Government, briefly repeated what Dr. Addison said in Committee as to the benefits which it was hoped would accrue, and said that although the clause would not go so far as was wished he was convinced that it would be of great benefit. Mr. Rawlinson strongly objected to the clause, insisting that it would allow certain people who were wholly outside the control of the Lunacy Acts to receive lunatics.

Dr. Fremantle supported the clause as giving a prospect that persons suffering from mental disorder but not insane could be dealt with in private houses in family life. His regret was that what was contemplated was inadequate. Nevertheless, he regarded it as offering a good beginning. Dr. Elliot asked the House to remember that this would not be an untried experiment. The system had been in operation in Scotland for fifty-four years without, so far as he knew, any abuse being reported. In the case of soldiers, funds would be available from the Ministry of Pensions. Dr. Raw, speaking with wide experience of lunacy work, supported the clause for two reasons: because it would tend to prevent mental diseases becoming hopeless and incurable, and because it would prevent these cases going into the lunatic asylums. He urged the importance of giving to everybody attacked with incipient mental disorder a chance to get well. The clause was retained by 88 votes to 24.

At the instance of Colonel Wilson for the Government, the provision under which any person under treatment can leave on giving notice was altered to read as follows:

> Provided that nothing in this section shall authorize any person who has been received into any institution, home, or house, under this section to be detained therein if he delivers to the superintendent or other person, by whatever name called, having charge of the institution, home, or house, or sends by post to the Minister, notice in writing that he desires to leave; except that a person who, in the opinion of the superintendent or other person aforesaid, is not in a fit state to leave, may be detained for a period not exceeding forty-eight hours from the date of the notice.

As the subsection was originally framed it provided for a notice of forty-eight hours. By removing the words "forty-eight hours" and by making detention for that period after notice the exception, it was claimed that patients would be ensured freedom to leave at any time save in peculiar cases.

Major Entwistle moved that no member of the Board of Control nor any official of the Board should be appointed an inspection officer. He reiterated the importance of keeping the homes or hostels entirely free from any association with lunacy administration. Dr. Addison said he entirely agreed as to the necessity of keeping these homes apart from the ordinary lunatic asylums, but it would be very unwise to debar by statute the appointment of any official of the Board of Control, however subordinate. He or any future Minister could be called to account if the regulation to keep this matter separate from the work of the Lunacy Board were not observed. He reminded the House that if any member of the Board of Control felt it necessary in the discharge of his duty to inspect any of these homes he would be fully entitled to do so at any time. After further discussion the amendment was negatived. Another amendment, moved by Mr. Myers, for the imposition of penalties in cases where a superintendent or other person in charge of a home neglected or ill-treated anyone received, was, by leave, withdrawn, Colonel Wilson explaining that this matter would be dealt with in regulations to be issued by the Minister and approved by Parliament.

Major Entwistle proposed a new subsection to provide that, except in case of homicidal mania, no person should be certified a lunatic while retained in any of these homes. He said he was prepared to substitute for "cases of homicidal mania" "dangerous cases." His anxiety was that the homes should not become half-way houses to lunatic asylums. Dr. Addison pointed out that the amendment would effect an alteration in the existing lunacy law. The people in these homes ought to have safeguards just as the ordinary person would have elsewhere. The amendment was rejected by 81 votes to 23.

The Hospital Clause.

Clause 9 (formerly Clause 11), to enable county councils to acquire existing Poor Law hospitals or infirmaries, was then considered.

Mr. Ormsby-Gore moved its rejection. He particularly objected to the provision under which, in default of an agreement with the county council and the Poor Law guardians, the Minister might, on the application of the county council, make an order for transfer after hearing the guardians. He said that since the introduction of the bill the Poor Law guardians' representatives had held their meeting in London and had strongly denounced the clause. He challenged the figures which Dr. Addison had given of the number of vacant beds. Mr. Lorden, seconding the amendment, favoured the alternative plan of giving legal sanction to the reception of paying patients by boards of guardians.

Dr. Addison reminded the House that no Poor Law infirmary could be taken over without the sanction by a Provisional Order of both Houses of Parliament, and this, he submitted, was an effective safeguard; moreover, the Minister would act only on the application of a county council. He emphasized how exceedingly important it was that the unit of area for such purposes should be a county, and referred also to the inherent obstinate objection which people had, rightly or wrongly, to going into Poor Law infirmaries. It was useless for critics of his proposal to pretend that this objection did not exist. Even if his figures of 30,000 vacant beds were wrong—he had had them reinvestigated and saw no reason to correct them—still, if there were 20,000 vacant beds, it would be a pitiable thing if they were not to be used to relieve the waiting list.

Dr. Raw strongly supported the clause, recalling that there were some fifty separate Poor Law infirmaries quite dissociated from workhouse infirmaries and workhouse administration. Dr. Elliot, who also supported the clause, said that he had before him the waiting list of a hospital within a stone's throw of the House of Commons. It had 388 beds and a waiting list of 701. He knew of another hospital with 600 beds which had 100 extra beds planted up and down the wards.

After further discussion, Mr. Ormsby-Gore's motion was rejected by 70 votes to 28.

Mr. Myers moved the omission of the subsection under which an expense incurred by a local authority in maintaining a patient in a hospital might be recovered where the patient was not a pauper. Dr. Addison said that unless the provision were included in the bill, it would mean that in the event of the county councils taking over Poor Law infirmaries and using them as hospitals, no charge at all could be made for anybody who came in, and that would be very wrong. The amendment was negatived by 76 votes to 18.

Mr. Myers moved to substitute the word "shall" for "may" in reference to the authority of the Minister to order that compensation shall be given to Poor Law officials. Dr. Addison said that the wording of the clause had been agreed on by the Poor Law Officers' Association. It was very difficult to say "shall," because in some cases people would not be entitled to compensation. The amendment was withdrawn.

On the clause for the sale of clinical thermometers, the rejection of which was moved by Mr. Lorden, Mr. Ormesby-Gore hoped it would be retained. It was, he said, quite the most useful clause in the whole bill—the only clause really worth having. A doctor had told him that before the war 40 per cent. of the clinical thermometers manufactured in this country were unreliable and inaccurate. The amendment was rejected.

Third Reading of the Bill.

The third reading of the bill was afterwards taken.

Dr. Elliot congratulated the Minister on the courage he had shown in pressing forward the urgent proposals contained in the bill.

Dr. Fremantle, while not blaming the Minister or the Government, held that the bill was a very poor vindication of the great pronouncements made when the Ministry of Health was formed. He referred to various commitments overdue, mentioning the better provision of sanatoriums, the Milk and Dairies (Prevention) Bill, and the reorganization of the Poor Law.

The bill was read a third time.

The Lords Reject the Measure.

In the House of Lords, on December 14th, the second reading of the bill was moved by Lord Sandhurst, who, speaking of the different proposals generally, said that they involved no charge on the Exchequer and that many of the clauses had been designed to lighten the burden on the rates.

Lord Strachie moved the rejection of the measure on various grounds, but chiefly because it had not, in his opinion, been given adequate consideration elsewhere, and the Peers also were asked to pass it without due consideration. Lord Strachie's particular criticism was directed

against one of the housing clauses, to which he referred to support his contention that the bill should not be hastily approved. Lord Gainford said he had been authorized by Lord Crewe to state that the Opposition did not regard the bill in a hostile spirit, but were rather anxious to help the Government to make it a more workable and practicable measure. But they thought that the demand for it to be dealt with at this period of the session was unfair. Lord Salisbury regretted that the proposals contained in the bill were brought forward in an omnibus measure, for some of them were good, and he should be sorry to see them lost; but many of them were objectionable. He also thought it unfair that the House should be called upon to consider such very important provisions at so late a period in the session. Lord Selborne described the bill as the most remarkable he had known in the course of thirty years' experience of Parliament, and joined in objecting to its rapid passage. Lord Curzon, speaking in a very conciliatory manner, showed his desire to meet the wishes of the House. He said he would be willing, if the bill were given a second reading, to postpone the Committee stage until after Christmas.

On the previous day, Lord Curzon had stated that if the Government were unable to get through all the business of the session by Thursday, December 23rd, there would be an adjournment on that day until the following Tuesday (December 28th). It is quite possible that the shortness of this interval for a Christmas vacation being in the minds of the Lords increased their unwillingness to agree to the proposal. Anyway, on a division, the bill was rejected by 57 votes to 41. The opinion in the parliamentary lobbies was that if Lord Curzon had apprehended the danger and had made clear that some little interval of time would be given before the bill was again taken, the second reading would have been secured.

Criminal Law Amendment Bill.

Although the Joint Committee of Lords and Commons accelerated their report on the Criminal Law Amendment Bill (1 and 2) and the Sexual Offences Bill, with the object, if possible, of enabling one of these measures as amended to be passed into law this session, that hope had to be abandoned. A measure embodying the changes recommended may, however, be expected in the Upper House early in the new session. The main features of the report were remarked upon in an article in the BRITISH MEDICAL JOURNAL of December 11th (p. 908). It may be added that Clause V of the Criminal Law Amendment Bill (No. 2)—in regard to the communication and prevention of disease—was adopted by the Committee only on a division, by 7 votes to 4, and the report states that the Committee were impressed by the evidence of several witnesses that communication and prevention should be dealt with by a measure for the protection of Public Health and not under the Criminal Law. It was further stated by a representative of the Ministry of Health that the question whether it was advisable to invoke the Criminal Law in the campaign against venereal diseases was really one for the Home Secretary. This is taken to mean that the operation of the clause, if included in an Act, would be at his discretion. The real problem, of course, is whether the penal provision would be a deterrent to attendance at a clinic. If the matter were dealt with under a Public Health Act on the lines under which the notification of various infectious diseases is now required the objection would not apply to the same degree. Lord Gorell's view was that it was better to retain the clause unless there were assurance that the subject would be taken up in some other bill, and so the decision to include it was reached by a majority as already intimated.

The Patent Medicines Bill.

Sir Philip Magnus asked, on December 8th, whether, having regard to the importance of the subject, in the interests of public health and the delay that has occurred in dealing with it, the Government will arrange for the introduction early next session of a bill to give effect to the recommendation, or to some of the recommendations, of the Select Committee on Patent Medicines. Dr. Addison replied that it was proposed to introduce next session a bill giving effect to the proposals which had now been agreed upon by the parties concerned. This, of course, is another way of saying that the bill which has been carried in the House of Lords is not to be proceeded with this session.

The Remuneration of Insurance Practitioners in London.—Lieut.-Colonel Burgoyne asked, on December 13th, whether in a number of instances the panel doctors in London under the London Insurance Committee were still unpaid for their services to the State. Dr. Addison replied that the method of calculating the remuneration of insurance practitioners in force for 1920 enabled a prompt settlement to be paid, quarter by quarter, of the sum agreed to be paid, and he was informed that these payments had been made. There were certain balances outstanding in London for 1919 which, under the old system of calculating remuneration, could not be finally completed until recently, but they were paid last week, except in cases where particulars were still awaited from individual practitioners.

Coroners' Inquests.—Mr. Finney asked, on December 13th, whether the Juries Act, 1918, was still in operation, and, if so, when it would terminate; whether the Act authorized a coroner to inquire into the causes of death of workmen employed in collieries, without a jury; and whether the terms of contract with the national or local authorities under which the coroner held office empowered him to conduct cases in court in which questions of workmen's compensation for injuries or prosecutions for breach of regulations were involved. Sir John Baird replied that the Act was remaining in operation until the end of six months after the official termination of the war. The circumstances which made it necessary to hold an inquest were set out in Section 3 of the Coroners Act, 1887, and not by any contract which coroners entered into on taking office. The Juries Act, 1918, allowed a coroner to hold an inquest without a jury if he thought proper to do so in the cases referred to. The question what, if any, amendment of the law as to inquests were desirable was under consideration.

Uncertified Deaths: Inquests.—In answer to Sir F. Blake, on December 8th, Dr. Addison said that the number of uncertified deaths reported in 1919, by registrars of births and deaths to coroners which were not the subject of inquests, was 6,698. The total number of inquests held in that year was 31,488, but no figures were available as to how many of these related respectively to certified and to uncertified deaths. He understood that in all cases the coroner was governed by the provisions of Section 3 (1) of the Coroners Act, 1887, which set forth the circumstances in which he was obliged to hold an inquest. Sir F. Blake asked if a medical man was asked by a coroner to give a certificate, had he, before doing so, to view the body of the person the cause of whose death had to be certified. Dr. Addison replied he had better have notice of that question.

Sanatorium Benefit.—Mr. Broomfield asked, on December 8th, whether in view of the discontinuance of sanatorium benefits from the scope of the National Insurance Acts at the end of the current calendar year, the Minister of Health was prepared to provide for the compulsory transfer to the new authority of the members of the staffs on Insurance Committees engaged in sanatorium work, or to provide adequate compensation for all officers displaced by reason of administrative changes, on the same lines as for other public servants whose duties were abolished by statute. Dr. Addison said (as announced in this column last week) that the discontinuance of sanatorium benefit was being postponed until April 30th. He was not satisfied there was any case for action on the line suggested in the question, but would examine carefully any representations made to him on the subject.

Small-pox in Scotland.—On inquiry by Mr. Waterson, on December 9th, Mr. Munro said that the outbreak of small-pox in Scotland this year began in Glasgow at the end of February. Cases had since occurred in the areas of thirty-three other local authorities in Scotland. Up to December 8th the number of cases in Glasgow was 516, and the number of deaths 107. Of these cases, the number previously vaccinated was 394, of whom 61 died; the number unvaccinated was 115, of whom 43 died. The number of cases in which vaccination was doubtful was 7, of whom 3 died. Only 13 cases remain in hospital in Glasgow. The number of cases outside Glasgow was 180, of whom 137 were previously vaccinated and 42 unvaccinated. In one case vaccination was doubtful. He was taking steps to obtain further particulars of these cases.

Dentists Act Amending Bill.—Replying to half a dozen members who recalled pledges made that a bill to carry out the recommendation of the Departmental Committee on the Dentists Act, 1878, would be introduced this session, Dr. Addison said, on December 8th, that in accordance with the promise made by him, with the concurrence of Mr. Bonar Law, to a deputation representing a large body of members, the bill dealing with this subject would be introduced so as to enable it to be printed before the recess, in order that those interested might have an opportunity of examining the proposals.

Central Liquor Control Board.—In reply to Sir James Remnant, who asked on December 13th as to the changes that had taken place in the Central Control Board for Liquor Traffic, Sir James Baird stated that the present members are: Mr. W. Waters Butler, the Rev. Henry Carter, Dr. H. H. Dale, F.R.S., Colonel J. M. Denny, C.B., the Hon. Hugh Godley, Lord Leverhulme, Mr. R. S. Meiklejohn, C.B., Mr. Sydney O. Nevile, Sir John Pedder, K.B.E., C.B., Mr. J. H. Thomas, M.P., Mr. Will Thorne, M.P., and Sir William Towle. Of these members, two are representative of the brewing interests, one is a leader of the temperance party, two are large employers of labour, two are Labour members of the House of Commons, one is a distinguished scientist, one is a man of great experience in the catering business, and three are civil servants. Sir John Pedder is the chairman.

Scotland.

REGISTRAR-GENERAL'S REPORT.

THE recent sixty-fifth annual report of the Registrar-General for Scotland estimates that the population at the middle of the year 1919 was 4,894,077, being 133,173 more than the population of the country as ascertained by the census of 1911.

The births registered during the year numbered 106,268, being 2,542 less than the mean of the previous five years. This gives an annual birth rate of 21.71 per 1,000; this is 1.54 more than that of the previous year, but 0.89 less than the mean of those of the previous five years, and 2.64 less than the mean of those of the previous ten years. The number of marriages was 44,137, or 9,508 more than in the previous year, and the highest on record. The death rate for the year was 15.35 per 1,000; this is 0.69 less than that of 1918, but closely approximates the mean of those of the previous five years.

The infantile death rate was 101.6 per 1,000, which is 1.8 more than that of 1918, but less than the mean of the preceding five years, and 6.9 less than the mean of the preceding ten years. The deaths of twelve reputed centenarians were registered during the year. Attempts were made in each case to verify the age at death, with the result that in five instances proof of the attainment of the age of 100 was obtained, and in two instances proof of not having attained that age was found, while in the remaining instances proof of age could not be got. During the last ten years careful inquiries were made as to the age of 134 reported centenarians, with the result that in fifty instances the attainment of the age of 100 was proved and in 12 instances disproved, while in 72 instances no satisfactory evidence was available.

Attention is directed to the very small mortality from enteric fever, to the unusually low phthisis death rate, and to the continued rise in the cancer death rate. Deaths from enteric fever during the year under review numbered only 83. This compares with more than 1,400 such cases in each of the years 1866, 1868, 1873, 1874, 1875, 1876, 1877, and 1878. The death rate from phthisis, which was 88 per 100,000, was 19 less than that of the previous year, 18 less than the mean of those of the five preceding years, and 23 less than the mean of the ten preceding years. The cancer death rate shows a rise to 116 per 100,000. It is the highest yet recorded, and is 17 more than the mean of those of the preceding ten years. Up to 1913 the phthisis death rate was constantly more than the cancer death rate, but the reverse is now the case.

THE VOLUNTARY HOSPITAL PRINCIPLE.

At the annual meeting of contributors to the Glasgow Western Infirmary, held on December 8th, a suggestion was discussed that patients who could afford it should be asked to contribute towards their treatment. Principal Sir Donald MacAlister observed that the infirmaries were said to be in a position of difficulty and even of danger. He, however, put his trust in the enlightened self-interest and goodwill of the community to prevent the abandonment of the voluntary principle and the taking over of the hospitals by the State or the municipality. The infirmary was not merely an outlet for the charitable feelings of subscribers, it directly concerned everybody, because the infirmary was a great teaching institution, and from such institutions went forth the energy, skill, and experience in medicine, surgery, and nursing which were of vital interest to every member of the community and every subscriber. Without them the whole framework of medicine and the public health of the community would break down. He was not sanguine that a municipal hospital, run as a sister department to the tramways, water, and gas, and officered by paid civil servants, would produce a body of professional men capable of taking charge—as the present body of the medical profession were—of the health of the people. The Lord Provost, in urging subscribers to greater effort in the future, said it would be a great pity if the beneficent work of the infirmary were in any way to be curtailed or hampered by the want of sufficient funds. The annual report, however, showed a deficit of more than £35,000. He thought additional revenue might be secured by asking those patients who had benefited from the skill and nursing they had received, and who were able to do so, to make a contribution to the infirmary when they left. Everyone wanted to see the voluntary hospitals carried on on their present basis, but unless additional support was forthcoming, the only alternative would be to put them on the rates. Lord Glenarthur spoke of the critical financial position of the infirmary; he hoped some solution of the problem would be found in the report promised by the Minister of Health upon the financial position of voluntary hospitals throughout the country.

THE SCOTTISH CONSULTATIVE COUNCIL'S REPORT.

Professor William Russell contributed to the *Scotsman*, on December 9th, an article on the interim report of the Scottish Consultative Council on Medical and Allied Services on "a scheme of medical service for Scotland," of which a summary appeared in the JOURNAL last week (p. 900). He thinks the report admirable from a literary standpoint, but in other respects he finds difficulty in treating it seriously. The Scottish Secretary, he says, must be gratified by the whole-hearted approval given by his Consultative Council to the visionary schemes shadowed forth in the official documents. He criticizes in vigorous language the proposal made in the report that the National Insurance Act ("this inefficient and injurious measure") should be extended to include wives, children, and other dependants of all persons of the same economic status as the present insured class. The common sense of the people and of Parliament, Professor Russell concludes, will decide whether or not they want to hand over their family doctoring to State officials by an extension of the Insurance Acts at a time when national finances and overtaxed pockets are clamouring for retrenchment and relief.

NEW PRINCIPAL OF ST. ANDREWS.

The King, on the recommendation of the Secretary for Scotland, has approved of the appointment of James Colquhoun Irvine, C.B.E., D.Sc., Professor of Chemistry in the University of St. Andrews, to be Principal of that University. Professor Irvine's connexion with St. Andrews began in 1895, when he became lecture assistant to the professor of chemistry. He was awarded one of the scholarships given by the Royal Commissioners for the Exhibition of 1851, and during its tenure studied at Leipzig, from which university he received the degree of Ph.D. In 1901 he returned to St. Andrews as a teacher, and has not only done important scientific work himself, but has fostered a spirit of investigation among his students.

Ireland.

FEES FOR MEDICAL WITNESSES AT ASSIZES.

LORD CHIEF JUSTICE MOLONEY has recently sent the following reply to a letter addressed to him by the Irish Medical Secretary in connexion with fees for medical witnesses at Assizes:

> In reference to previous correspondence regarding the inadequacy of the fees allowed to medical witnesses at Assizes, I am directed by the Lord Chief Justice to inform you that in Crown cases the Treasury have increased the allowance to 1½ guineas for one case, and £3 3s. if outside the town in which the doctor resides, or if the number of cases exceeds one; in addition to 10s. per night personal allowance, and also travelling expenses. As regards cases on the civil side, the judges have approved a new rule which makes the fee for a medical witness if resident within five miles of the place of trial, or ten miles if there is a railway for three-fourths of the distance, £1 11s. 6d. per day, if beyond that distance £4 14s. 6d. per day.

POOR LAW MEDICAL OFFICERS' SALARIES.

The Mullingar (Westmeath) and Gorey (Wexford) boards of guardians have granted scales of salaries for Poor Law medical officers, reaching a maximum of £350 and £300 a year respectively. Owing to the stoppage of grants from the Treasury there is at present no money in the hands of the guardians' treasurers to pay the doctors' salaries, and both boards agreed that the revised scales should not become operative until next March when a new rate would be struck to meet the increased salaries. The Irish Medical Secretary attended both meetings of guardians and stated the case for the doctors.

Australia.

INFLUENZA IN MELBOURNE IN 1919.

IN his report for 1919 Dr. T. W. Sinclair, the health officer for Melbourne City, records a corrected death rate of 16.30 per thousand, the highest since 1898. The total deaths registered were 1,682; this increase of nearly 500 on the figure for 1918 was due almost entirely to deaths from influenza, which has never before been so fatal in the city. The epidemic of influenza, which was accompanied in a large proportion of cases by lung complications, began abruptly on January 24th, and showed three waves, which were at their height in the middle of February, at the end of April, and in the middle of June respectively. With the onset of mild weather the disease practically disappeared in October. The total number of notifications was 8,678, equivalent to an attack rate of 81.83 per thousand, but these figures, Dr. Sinclair believes, represent a proportion only of the cases which actually occurred. Both in males and females deaths were most frequent at the age-period 25-35. The number of patients treated in emergency and other hospitals was 3,772. Four public dépôts for inoculations with vaccine against influenza were opened, and nearly 23,000 inoculations were performed in sixty-two days; an inhaling station was also provided for disinfection, and during five weeks was used daily by thirty-two of the Council's employees. A system of home visitation, carried out by nurse inspectors, obviated the removal to hospital of many of the less severe cases. The inspectors made 1,758 visits in order to report on the destitution caused by the epidemic; 529 families were relieved by the Council.

Correspondence.

VITAMINE IN MARGARINES.

SIR,—I do not think that the letter in your last issue by Mr. Stammers should be allowed to pass without a few words of comment. Its slipshod heading (Fat-soluble content of oils) to those unaccustomed to the jargon of the specialist may not be intelligible to the majority of your readers, but the question he raises is one of great practical importance. A glance at the address from which he dates his letter (Port Sunlight) will, however, show that he is dealing with the margarine problem.

For some years past the margarine makers and those whom your correspondent dubs "scientists" have been at variance. Physiological workers have insisted on the necessity of including in butter substitutes a certain amount of the vitamine, so necessary for growth, which is present in real butter and which it is now usual to speak of as vitamine A or the fat-soluble accessory factor. For many reasons—the most important of which is price—the margarine of the present day is mainly made from vegetable oils which undergo during manufacture a process known as hardening or hydrogenation—a process which, as your correspondent rightly says, destroys any vitamine A, even if any were present in the original oil. What the physiologists have done is to point out the danger to the community which would ensue if such margarines were to become the main source of fat supply, and that this danger is especially great to the growing section of the population. They would have a difficulty in tracing the history of every sample of fat which came before them, and this difficulty would be insuperable for the ordinary purchaser of margarine. The practical point is that commercial samples of the vegetable oils so far tested and of the margarines made from them are destitute of this important antirachitic factor.

The Medical Research Council's report on the subject, which Mr. Stammers speaks of as worthless, has done yeoman service in bringing this indisputable fact before the public. The seriousness of the question is being realized by Messrs. Lever Bros., who have taken the important step of establishing a laboratory at Port Sunlight to investigate it, and one hopes that the result will be a product which will be not merely a commercial and palatable success, but one which will satisfy nutritive needs on physiological principles. Dr. Drummond's investigations on lard, which Mr. Stammers refers to but has misunderstood, have shown that pig's fat in the natural state contains the vitamine, but the absence of the latter in the finished product (lard) is due to its destruction by the high temperature and other drastic treatment employed in the manufacture. Whether the same is true for vegetable fats is at present largely an academic question, but one which is full of interest; it may possibly be in the future of practical importance also.

What the public buys, and what presumably the margarine maker uses, is not the crude oil, but the more or less refined article from which any vitamine, if present in the crude oil, has been removed. At present also, so far as can be ascertained, the margarine maker, by the process of hardening, ensures the final disappearance of the vitamine.

One welcomes Mr. Stammers as a recruit in the ranks of those working at vitamines, and trusts he may be successful in helping in the elucidation of this and other doubtful points. But until he has a little more experience and has won his spurs in the race for knowledge he is hardly in the position to lecture his fellow "scientists" on their failings.—I am, etc.,

King's College, London, Dec. 12th. W. D. HALLIBURTON.

HYPNOTISM AND SUGGESTION.

SIR,—In reply to Dr. R. MacD. Ladell's letter of criticism, I would ask him to re-read my article in your issue of December 4th, when he will perhaps realize that the question of the nature of hypnotism is one of fact. By saying "there is general agreement that when we speak of hypnotism we mean a state of increased suggestibility," he is begging the whole question. I have found, as the result of hypnotizing many hundreds of patients, both soldiers and civilians, and giving suggestion treatment to still more, that hypnotizability and suggestibility do not vary in complete direct proportion to one another. On the other hand, hypnotizability and degree of mental dissociation (breaks in the memory continuum) do vary directly with one another. There is a close relation between hypnotism and suggestion, of course, but I venture to hold that we are still far from knowing everything about this relation, and we shall only know more by making more observations. Surely we should not be surprised to find that the concentrated experience of the past six years throws doubt on some of our earlier generalizations.—I am, etc.,

WILLIAM BROWN.

University of London, King's College, Dec. 13th.

THE RISKS AFTER OPERATION FOR TONSILS AND ADENOIDS IN OUTDOOR CLINICS.

SIR,—The comment of Dr. Waldo, the City coroner, on the death of a child after operation for tonsils and adenoids, namely, that the child ought to have been detained in hospital for a day or two, emphasizes the importance of the subject of the communication on the risks after such operations in outdoor clinics by Mr. E. Watson-Williams, although he dwells particularly on the increased percentage of serious morbidity of cases operated on and sent home the same day, as compared with children who are detained in hospital for a few days. I have long felt that a grave responsibility rests on those in charge of throat and ear clinics to protest against the conditions under which we are compelled to operate for lack of adequate provision for such cases, and, at my invitation, Mr. E. Watson-Williams made the investigation in the series of cases he cites. We do not suggest that the relative percentages afforded by the comparatively small numbers investigated can be regarded as exact, except in so far as the cases in the series are concerned, but they are sufficient to illustrate the dangers incurred in operating and sending children straight back to homes which are often very crowded, dirty, and without the possibility of careful supervision. For instance, I find a child was operated on and sent back to a home of three rooms for the father, wife, and four children, one a boy of 16; within two days the child developed scarlatina, other cases of scarlatina developed in the sisters; a month or two later a case of diphtheria occurred in one of the children, and the first mentioned child contracted diphtheria also. This was not a case in which the operation for tonsils and adenoids had any untoward effect, but the home conditions were a fair example of those to which we

send these poor children to run grave risks to which the well-to-do would never consent. Surely, despite the financial stress, something better ought to be devised than the slipshod methods which we have been compelled to accept, as though they were unavoidable.

If beds cannot be provided in the voluntary hospitals, it is a question whether the Education Committees which provide medical inspectors, who inform the parents that they must have their children's throats operated on, should take some steps to see that adequate provision is made for such operations being done under fair conditions. Furthermore, I would suggest that, where possible, boards of guardians should be empowered to provide hospital accommodation for such cases, the costs of maintenance being borne by the municipality or education boards. If general hospitals and children's hospitals cannot provide for such children, the public purse must not be tightened against the children's necessities, and surely the question raised is a matter of urgent necessity.—I am, etc.,

P. WATSON-WILLIAMS,
President, Bath and Bristol Branch of British Medical Association.

Bristol, Dec. 11th.

SIR,—I am fully in agreement with Mr. E. Watson-Williams's excellent article in the JOURNAL of December 11th, p. 887. For many years I have been more and more impressed with the imperfection of our treatment of these cases, and it has been my custom during these years not to operate between the months of October and late April unless patients could be admitted to hospital. About a year ago I wrote strongly to the committee of the Portsmouth and Southern Counties Eye and Ear Hospital on this subject, with the result that a certain number of special beds were set apart for these cases in children for forty-eight hours' detention in hospital, thus enabling several batches to be operated upon every week.

I quite agree with Mr. Watson-Williams as to some of the sequelae of operation in these cases—acute otitis media, bronchopneumonia, and acute sepsis; and it was the occurrence of these sequelae, with more than one fatality, which made me form a very strong opinion on this subject. I think, however, that we ought to go further. No case is now done at my clinic without previous examination of the teeth and removal of any dental sepsis, and after operation the throat is sprayed at intervals with mild antiseptic, such as weak peroxide of hydrogen, 1 per cent. carbolic, in the ordinary collinarium alkalinum. I also think we should go still further (and in particularly infected throats or discharging noses this is now done) and practise pre-operative cleansing, the obvious difficulty being the lack of assistance for the large number of cases.

The operation for removal of tonsils and adenoids is still regarded far too lightly. If well done, and if all goes well, the results, as regards benefit in the development of the child, are admirable; if not done well, or if all does not go well, the results in many cases are deplorable. There is no other region in the body where a septic mass, teeming with many varieties of organisms, is removed, leaving a considerable wound exposed to septic secretions, without post-operative treatment, and often in such unhygienic surroundings as some of the homes where these children live. Is it any wonder that in some cases the sequelae are severe? There is also the question of post-operative haemorrhage; though this is in my experience comparatively rare, it still does occur, and sometimes to an alarming degree, and the difficulty of dealing with this mishap in a private house, unless under the best surroundings, is very considerable and the risks obvious.

I therefore strongly support the conclusions of Mr. Watson-Williams—namely, that this operation should be treated more seriously and the patients admitted to hospital (I refer to the hospital class of patients) until it is seen that the wound is healing without undue risk of complication, post-operative treatment being carried out in every case both by throat spray and nasal irrigation, where possible, and the patient seen at least a week subsequently by the surgeon.—I am, etc.,

C. A. SCOTT RIDOUT, M.S., F.R.C.S.,
Surgeon to the Ear, Throat, and Nose Department, Portsmouth and Southern Counties Eye and Ear Hospital; Senior Assistant Surgeon, Royal Portsmouth Hospital.

Southsea, Dec. 12th.

GLOUCESTERSHIRE SCHEME FOR EXTENSION OF MEDICAL SERVICES.

SIR,—Dr. Middleton Martin, in your issue of December 11th, says: "To correct any misapprehension which might result from Dr. Todd-White's letter in your issue of November 27th . . ."

Unfortunately for me, Dr. Martin omitted to point out that the scheme I objected to was the very extravagant one of the Ministry of Health, and not the excellent one which the medical men of Gloucestershire have drawn up, and are, I believe, carrying out with satisfactory results.

The Ministry of Health used Gloucestershire to illustrate their proposed scheme of primary health centres, and therefore in my letter I dealt with that county. The point of difference is that the primary health centres are nothing more or less than elaborate hospitals, which I contend are unnecessary, whereas the Gloucestershire scheme proposes "out-stations," which are, I conclude, consulting rooms, with special apparatus for dealing with school children, pensioners, tuberculosis, and the like.

The Gloucestershire scheme proposes "out stations" for Cinderford, Newnham, and Coleford; the Ministry of Health proposes primary health centres for all these three. The towns are quite near each other, and yet a primary health centre of Type 3 is suggested for Cinderford and Type 2 for Newnham and Coleford. Type 3 is a young hospital with nearly 100 rooms in it. Type 2 is a smaller building—so small that it only has *sixty windows* shown on the "south elevation."

I contend that the primary health centre at Cinderford would cost more to keep up than the estimate in the Gloucestershire scheme for all the thirty out-stations. If the Ministry of Health proposes putting up primary health centres all over England on this scale the nation will be bankrupt; it cannot now, and it never will be able to, raise the money for their upkeep. The scheme reminds me of the patient with general paralysis of the insane who goes about buying dozens of watches, which he cannot possibly use and which he cannot pay for.—I am, etc.,

ARTHUR T. TODD-WHITE.

Leytonstone, E., Dec. 11th.

NYSTAGMUS.

SIR,—Nystagmus is associated with conditions that produce imperfect retinal images, but only a small percentage of these conditions is due to coal-mining. In all these conditions the impulses that normally pass to the visual centre are reduced or are practically absent. The visual centre is probably part of the cortical mechanism that directs and controls ocular movements, and if this mechanism is deprived of its normal stimuli then it may be reduced through lessened activity to abeyance of function. The lower centres would then be uncontrolled. The movements of the eyeballs—rhythmic and irregular—manifest the absence of the orderly cortical quality.

The exclusion from coal mines of men with defective vision from any cause would greatly reduce the number of cases of nystagmus found in that industry.

May I invite those who may have seen nystagmus produced in non-miners by shell-shock, with or without obvious trauma, to report their observations? No one, as far as I know, has recorded nystagmus associated with injury of the visual centre. I have seen one case associated with gunshot injury of the left ear, and I have reported a case of left convergent squint with diplopia and small central scotoma, in a case of gunshot injury of the right half of the cortical visual area.—I am, etc.,

J. ALEX. WILSON.

Glasgow, Dec. 13th.

THERAPEUTICS OF NORMAL HORSE SERUM.

SIR,—Your leading article in the issue of the JOURNAL of December 4th on "The treatment of anthrax with normal ox serum" moves me to sent a few rough notes of various cases in which normal horse serum has proved beneficial, in the hope that some experimenters with facilities which are denied to a country practitioner may investigate the action of normal serums when administered to the human subject (*a*) hypodermically, (*b*) by the mouth; also determine the minimum and maximum doses, and, incidentally, furnish a scientific explanation of the results obtained.

It would be too long a story to enter fully into the reasons which have led me to the conclusions—

(1) That normal horse serum is in itself + "anti" to a very large number of infective organisms;
(2) That a specific serum is also + "anti" to very many infective organisms, though possibly it is ++ "anti" to its own specific organism;
(3) That administration by the mouth does not destroy its "anti" properties, though its action is probably slower and larger doses are required than when given hypodermically.

It is now some fifteen years since I first began to give normal horse serum by the mouth in infective diseases, with encouraging results in such cases as infective affections of the throat; infective abscess formations, boils, carbuncles; infective fevers, mumps, measles, scarlet fever; pneumonia; influenza and catarrhal affections; erythema nodosum; gastric and duodenal ulcer; basal meningitis; encephalitis lethargica, etc.

A dose of 10 c.cm. given by the mouth at the commencement of the illness, and repeated on the second and third days, if required, will abort and clear up most cases of septic throat; will hasten resolution of local inflammations—that is, boils, carbuncles, multiple abscesses, erysipelas; will ensure a case of one of the infective fevers running a mild and uneventful course; will generally ensure a crisis in pneumonia on the third day; will frequently abort an influenzal cold; seems sometimes to act as a specific in erythema nodosum; materially assists the cure of gastric and duodenal ulcers; will generally reduce to normal the third day temperature sometimes met with during childbirth; has cured at least one seemingly hopeless case of basal meningitis under my care; and was, I believe, the determining factor in the recovery of a case of encephalitis lethargica.

That better and more constant results might be obtained with larger doses is my firm opinion, but cost prohibits experiment beyond early response in private practice.

That other serums, such as ox serum or possibly goat serum, would be equally valuable I have little doubt, but here again facilities are lacking to the general practitioner to obtain supplies.

I plead for further investigation and research into the preventive and curative properties of various serums, especially when administered by the mouth, as I believe we have at hand Nature's own supplies of "antibodies," wellnigh inexhaustible, can we but tap and administer them in adequate doses.

May not this bare recital of results obtained stir the imagination to see a reason underlying the value that has been attached to "blood" through all ages as a curative and cleansing agent, especially in the history of medicine and theology?—I am, etc.,

Bratton, near Westbury, Wilts, Dec. 10th. T. WOOD LOCKET.

MUSCLE RE-EDUCATION IN INFANTILE PARALYSIS.

SIR,—Dr. Cyriax's further letter in your issue of December 11th on this subject contains a most important admission regarding the methods of the Swedish school in the treatment of infantile paralysis. It also embodies such a fundamental difference of opinion with myself as almost to exclude any basis for further discussion.

The question of the necessity for accurate splinting and scientific resting of paralysed muscles in this disease resolves itself, as concerns Dr. Cyriax and myself, into one of personal opinion, and we are as far apart as the poles.

Dr. Cyriax says in his letter:

"... splinting is not essential in the treatment of infantile paralysis. During the last seventy years the Swedish school have treated this disease without splinting—a method which I have always adopted—and have obtained very good results."

I emphatically disagree with this doctrine; I regard it as a dangerous retrogression, and if tolerated calculated to have a very pernicious influence on all future treatment of paralyses. It seems to me almost incredible that there should be any possibility of controversy on this subject, after the world-wide acceptance of the views evolved and so ably advocated for many years by Sir Robert Jones,[1] as to the value of splinting in cases of paralysis.

[1] Sir Robert Jones: Treatment of Infantile Paralysis, BRITISH MEDICAL JOURNAL, 1914.

Dr. Cyriax desires to divorce splinting and anatomical rest treatment from early attempts at movement in infantile paralysis; in my opinion the two are inseparable, and this was the conception which I endeavoured to make clear in my recent article. To state that physiological rest by splinting does not constitute a portion of muscular re-education is simply to make a direct negative statement, and I can only reiterate that I regard the one as a direct corollary of the other.

I refuse to believe, for example, that any treatment of a paralysed deltoid, persisted in with the arm left hanging by the side, could be productive of a satisfactory result. To take the weight of the arm off the injured muscle by some form of abduction arm splint seems to me such an obvious essential of correct treatment as to admit of no adverse criticism. Any method of treatment not based on these principles I regard as being mainly responsible for the helpless, wasted, and deformed limbs so frequently met with in old sufferers from infantile paralysis.

The wastage of human life and happiness caused by this disease arouses in me an anxiety to combat, on the one hand, the apathy which encases limbs in splints or plaster for indefinite periods, and on the other the recklessness which persists in attempting to obtain movement without paying attention to the great value of scientific muscle rest by splinting.

That splint treatment is only part of the story I would admit at once; but to neglect it is to court disaster, and to persist in it to the exclusion of all attempts at early movement is to overlook, on the other hand, golden opportunities of obtaining early recovery.—I am, etc.,

London, W.1, Dec. 12th. CHARLES MACKAY.

THE METRIC SYSTEM.

SIR,—It is really depressing to see that in the report of the Inquiry Committee on the standardization of optical instruments it is recommended that the British inch, rather than the metric measure, should be retained as the unit of length in this department of manufacture. Nothing is more exasperating than this same British inch to those of us who, living abroad, have learned to appreciate the immense convenience of the metric system. From a medical point of view what can be said in favour of the British system of weights and measures in matters pharmaceutical? Here at any rate there are signs of a movement in the direction of the metric system. Allow me to quote a piece of arithmetic to show how infinitely superior this system is to our own complicated weights and measures.

Suppose I ask anyone to calculate for me the weight of water per square mile with one inch rainfall. The chances are a hundred to one that, even with a library at his back, he will be unable to give me an answer within half an hour. But in the metric system it is a matter of two minutes' calculation. This time I will ask the weight of water on one square kilometre with a one centimetre rainfall. Now a metre comprises one hundred centimetres, which, being squared, gives 10,000 square centimetres. If, then, each square centimetre is covered with a cubic centimetre of water (the rainfall being one centimetre) that gives us 10,000 c.cm.—for example, 10,000 grams of water (1 c.cm. water weighing 1 gram), that is to say, *ten kilograms* per square metre. Now for the kilometre. This comprises 1,000 metres, and 1,000 × 1,000 = 1,000,000 square metres. The weight of one centimetre depth of water on a square metre has been shown to be 10 K., and this, multiplied by the kilometre result = 10,000,000 kilograms, or—shall we say?—10,000 tons. And there you are! Simplicity itself!

Should this demonstration inspire a taste for arithmetic your reader might then try to work out the price of 1,000 cubic feet of coal-gas sold in Algiers at the present price of 1 fr. 69 c. per cubic *metre*. And the result will horrify him.—I am, etc.,

Algiers, Dec. 1st. ALFRED S. GUBB, M.D.

THE NAVAL MEDICAL SERVICE.

SIR,—"Six Naval Medical Officers," writing in your issue of December 11th, have placed a few of the disabilities of our service before your readers, but they have not mentioned the most important.

Under present conditions, service for medical men in the navy is becoming a "blind alley," for the maximum pension to which an officer can hope to attain is, with a few exceptions, only £600 a year—a sum which I can vouch for is quite inadequate to bring up a family on in these

days. At the present moment distracted officers at 55 years of age, recently retired, are trying to obtain or perform work in new walks of life when they might reasonably have hoped to have a well-earned rest after being at sea for the best part of their lives.

Gross inconsideration has ever, and will ever, mark the treatment meted out to the naval medical officer. The most glaring instance of this lately is the awarding of only a 10 per cent. increase of pension to surgeon commanders recently retired at 55, while all other officers get anything from 40 to 100 per cent. increase, and this in the face of the Halsey report, which recommended an all-round increase of 50 per cent. It should be noted that young commanders who have been passed over for promotion can secure the same pension at about 46 years of age.

If a private firm dared to treat its officials in a similar manner, such action would be called by a much harsher term than "inconsideration."—I am, etc.,

December 13th. LATELY A SURGEON COMMANDER.

TROPICAL FLEAS.

SIR,—With reference to Dr. Clarke's letter on tropical fleas, in the BRITISH MEDICAL JOURNAL for December 11th, I think I am correct in saying that *Pulex irritans* has never been found in the Anglo-Egyptian Sudan. It is at least very rare in that country, as noted on p. 148 of the *Second Review Supplement of the Wellcome Tropical Research Laboratories*, 1911, and I doubt if it has ever been discovered there.—I am, etc.,

London, N.W.1, Dec. 13th. ANDREW BALFOUR.

Obituary.

SIR FREDERICK TAYLOR, BT., M.D.,

Consulting Physician to Guy's Hospital; formerly President of the Royal College of Physicians of London.

SIR FREDERICK TAYLOR, whose death on December 2nd was briefly noted in our last issue, was elected President of the Royal College of Physicians in 1915, but was compelled not to seek re-election in 1918 owing to the onset of the illness which, after withdrawing him from all his customary activities, has now terminated his life.

Frederick Taylor was the son of Mr. David Taylor, M.R.C.S., of Kennington, and was born there in 1847. He received his early education at Epsom College, and in 1863 entered Guy's Hospital, where he had a brilliant career. He graduated M.B. in the University of London in 1868, taking the university scholarship in midwifery and forensic medicine. He took the M.D. degree in 1870, became M.R.C.P. in 1872, and was elected a Fellow in 1879. He held the usual junior appointments in Guy's Hospital, and in 1872 was elected assistant physician. He was also for a number of years physician to the Evelina Hospital for Sick Children; at various times he held a similar position at the Seamen's Hospital, the National Hospital for Diseases of the Heart, and the Royal School for Deaf Children.

After his election to be physician to Guy's Hospital in 1885 he devoted himself with increased zeal to his duties as a clinical teacher. In that capacity his extensive knowledge, sound judgement, and thoughtfulness for others made him very popular with students. The same qualities earned him a commanding position in consulting practice in London. His wide knowledge of the literature of medicine, tempered by immense practical experience, was displayed in his textbook, the *Practice of Medicine*, the first edition of which was issued in 1890, and obtained immediate success. Succeeding editions—the eleventh appeared in 1918—were subjected to the most painstaking revision, so that the book still remains one of the most useful and popular of students' treatises.

Sir Frederick Taylor was long a member of the British Medical Association, and had held the office of President of the Metropolitan Counties Branch; he was Vice-President of the Section of Medicine when the annual meeting was held in Nottingham in 1892, and President of the Section of Diseases of Children when it met in Ipswich in 1900. He was a member also of the Central Medical War Committee, in the business of which he took great interest. He had held the offices of President of the Clinical Society and of the Medical Section of the Royal Society of Medicine. He retained his interest in Epsom College; for many years he was a member of the Council, and for some years chairman of the School Committee; he also held the position of honorary physician. He was a senator of the University of London and was its representative on the General Medical Council from 1909 to 1918. As has been said, Sir Frederick Taylor became a Fellow of the Royal College of Physicians in 1879; he was a councillor in 1897–99, and a censor 1904–5 and 1910. He delivered the Lumleian Lectures on Some Disorders of the Spleen in 1904, and was Harveian Orator in 1907, when he dealt with the need of research in medicine. As president, an office to which he was elected in 1915, he showed conscientious attention to the onerous duties of that post; but the anxieties of the war, aggravated by the loss of a son, at first reported missing, and afterwards by the death of his wife, led to a serious breakdown in health from which he never recovered. He was created a baronet in 1917, and is succeeded by his son, Dr. Eric Stewart Taylor, O.B.E., late captain R.A.M.C.(T.).

We are indebted to one of his colleagues at Guy's Hospital for the following tribute to his work there and to his attainments as a physician and his qualities as a man:

Frederick Taylor entered Guy's young, and as a student or teacher remained there until he became consulting physician at the retiring age of 60. The most striking things about him were his exceptional ability, his power of hard work, and his conscientious devotion to his duty. He never failed to attend his wards punctually, he never curtailed his rounds; indeed, they were sometimes too long for the less enthusiastic of his followers. The chief characteristic of his teaching was his insistence on accuracy in fundamentals, such as physical signs, and his trenchant criticism of inaccuracy in others. He was an observant, highly skilled, and far-seeing physician; his diagnosis was rarely at fault. His bedside demonstrations and his lectures were much to the taste of senior students, who always appreciated that what he told them was the truth of the matter, as far as it could be known, because, in addition to his critical mind, he possessed a marvellously retentive memory for even the smallest details of works he had read and cases he had seen. These same features appear in the papers he contributed to medical literature, and make his textbook one of the very best of recent years. He was, as might be expected, an excellent man of business, therefore he had much to do with the management of the Medical School, where for a long while he was dean, and where he served on all important committees. He was indefatigable in his labour for the school; he always remembered everything about it, and the way in which, years after a student had left, he could recall the date of his entry and the appointments he had held, was almost uncanny. He was a trifle austere, and students were inclined to feel a little afraid of him on first acquaintance, but this wore off when, as was always the case, they found he was anxious to do all he could to help them.

Throughout his life he upheld the best traditions of his predecessors, and by his example, his industry, and his teaching maintained the high ideals of the hospital and its medical school, which were fortunate in having in him a man who never sought popularity outside his profession, but who made it his life's occupation to strive hard for its good. Any hospital and medical school having on its staff such a man as Frederick Taylor must be under a deep debt of gratitude to him.

Sir CHARTERS SYMONDS has been good enough to send the following:

In reply to your request I will refer to the service Sir Frederick Taylor rendered to the medical school at Guy's Hospital, as it is but little known, and absorbed so large a part of his time as to interfere materially with strictly professional work. After a brilliant career at the University of London he was, at the age of 23, appointed a demonstrator of anatomy. In the following year, I think it was, he took over control of the office of the medical school at a ridiculously small remuneration. The business was in a state of chaos, as it had outgrown the capacities of the old apothecary, Mr. Stocker. Within a very short time Taylor had organized the office, and was soon after appointed the first dean of the medical school. He laid

down the lines so well, and with such foresight, that further developments were easily carried out under his successors. Everything running smoothly, no one seemed to think that the work of the dean had increased enormously owing to the many changes in the curriculum. Yet no word of protest was ever heard from Dr. Taylor, though he recognized that the demand seriously interfered with professional work. At the conferences of the deans of the medical schools Taylor's keen insight proved of signal value in adjusting the many changes in the curriculum, and in bringing about co-operation. When he served on a committee it was seldom any aspect of a question was overlooked; but should he see any confusion or omission he was the first to open the question in the general meeting. As chairman of the staff meetings Taylor was at his best; he let others speak, only keeping them to the point. Should discussion become heated, he by some remark showed the humorous aspect or by some shrewd question switched the discussion on to a better line. Finally, his summary was always excellent, never using the authority of the chair unduly. I do not think Taylor ever said an unkind word of anyone. As a physician he was progressive, and, especially when abdominal surgery began in the eighties, I had frequent opportunities of consultation with him. While we were learning how to relieve the acute appendix cases, the intestinal obstructions, he was always present. He would come down at any time of the night in order that he might learn the actual conditions and become familiar with living pathology. Hence his opinion became most valuable in abdominal disease, especially in acute cases. In private he often assisted me, both in the technical work itself and in deciding what was best to be done. He was, in fact, an excellent assistant at an operation. When he was asked to write the *Manual of Medicine*, I remember he joined Goodhart and myself in a river excursion, and told us he had just signed the agreement. One knew that there would be no uncertain statement in that volume, for accuracy in all things was an essential part of his make-up. There has left us one who was a true friend, a single-minded gentleman, a man who devoted himself to the hospital and school he served so long and so well. In recognition of these services the governors and his colleagues presented him with his portrait, which now hangs in the Governor's house at Guy's Hospital.

WE have received through Dr. Arthur Latham a tribute by Mr. R. Wollheim, an American patient, to Dr. OTTO WALTHER, who founded, about 1889, the Nordrach tuberculosis colony in the Black Forest, Southern Germany. The site chosen had an elevation of 1,500 feet, was ten miles from a railway, and was remote from towns. It consisted of a number of small houses and cottages amidst flower gardens and meadows. Dr. Walther ruled with a rod of iron to ensure that his system should be carried out. One chief feature of it was a combination of rest and exercise; patients were required, under strict medical supervision, to walk uphill. A large number of English patients went to the Nordrach colony, and the advice to go there continued to be given until Dr. Walther retired from practice in 1908. Among the patients in the earlier days were some British medical men, who introduced the system into Great Britain, and when in 1910 Dr. Walther's own son contracted tuberculosis his father sent him for treatment to an English Nordrach sanatorium. Mr. Wollheim considers that the success of Dr. Walther's treatment was due to its inherent excellence, to the highly favourable situation of the sanatorium, and to the extremely rigorous individual supervision made possible by Dr. Walther's powerful and commanding personality. Dr. Walther died last year.

THE French Academy of Medicine has recently lost its permanent secretary, Professor G. M. DEBOVE, who died on November 19th, after a long illness. He was born in 1845, and graduated M.D.Paris in 1873. He became physician to the hospitals in 1877 and agrégé in the following year. He did not limit himself to any one department of medicine, but is best known for his writings on diseases of the stomach. He became a professor of pathology in 1890, and when he resigned that office taught clinical medicine at the Beaujon Hospital. He was elected a member of the Académie in 1893, and twenty years later was unanimously chosen to be permanent secretary.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

SECOND M.B.—*Materia Medica and Pharmacology:* J. H. Fletcher, E. H. Koerner, C. H. Laver, D. G. Leys, T. S. Nelson, H. D. Pavière, I. M. Sidley, C. H. Terry, C. J. L. Wells, Dorothy J. Collier, Dorothy W. Crook, Jean Orr-Ewing. *Pathology:* C. W. C. Bain, C. F. T. East, H. C. Hill, R. F. Johnstone, C. H. Laver, E. G. T. Liddell, D. B. Pauw, C. H. Terry, W. S. Tunbridge, C. J. L. Wells, W. A. Young, Jean Orr-Ewing. *Forensic Medicine and Public Health:* H. G Burford, C. C. H. Chavasse, D. G. T. K. Cross, C. F. T. East. *Medicine, Surgery, Midwifery:* C. K. J. Hamilton, I. Harris, J. T. S. Hoey, W. F. Skaife, C. H. Terry, C. J. L. Wells.

UNIVERSITY OF CAMBRIDGE.

AT the Congregation held on December 8th the proposals for the admission of women students to full membership of the University were rejected by the Senate. The Grace offered to the Senate was: "That the Statute for Women Students proposed in Report A of the Syndicate on the Relation of Women Students to the University be approved." The voting was as follows:

Non-placet	904
Placet	712
Majority against...	191

In consequence of the rejection of this Grace the recommendations contained in Report B of the Syndicate will be brought forward at a later Congregation. A summary of the two Reports, together with a summary of the various stages in the relationship of women to the University of Cambridge appeared in the JOURNAL of August 21st, 1920, p. 284. The Syndicate was appointed twelve months ago to consider the relation of women students to the University, its instruction being "to consider whether women students should be admitted to membership of the University, and if so, with what limitations, if any; and alternatively to consider, if women students are not admitted to membership, by what means the University could co-operate with the Women's Colleges or other bodies in the conferment of degrees on women students." The two reports, A and B, were presented in May last; each was signed by six out of the twelve members of the Syndicate. Report B recommends the creation at Cambridge of a separate university for women to be formed by the incorporation of Girton and Newnham Colleges, the facilities and privileges already conceded to women by the University being continued; this recommendation is not, however, acceptable to the authorities of the women's colleges. A proposal for the admission of women to titles of degrees was rejected by the Senate in 1879, and another in 1897, when 662 voted for and 1,713 against it.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—E. Ablett, Isabella Aitken, C. Brownlie, E. Byres, C. Calder, H. Chodak, E Connell, Mary Cripps, Elizabeth Critchley, Cornelia Cross, A. Cumming, A. Cuthbert, W Eadie, J. Eijkelenboom, Dorothea Gall, R. Galloway, S. Gasson, Isabella Gillespie, I. Goldberg, W. Grantham, W. Grassick, J. Grierson, E. Griffin, T. Hastings, H. Holden, W. Hunter, E. Isseron, R. Jackson, M. Jardine, J. Leckie, D. Lewis J. Liddell, J. MacBeth, Flora MacDonald, Isabella Macfie, R MacGarrol, *A. M'Gregor, F. Meine, P. Menon, J. Mill, Rosemary Morris, Deborah Morrison, H. Nichol, H Pierce, C. Pieters, J. Rebkin, Roberta Rankin, Marion Reid, F. H. Reynolds, J. Riesnik, D. Robertson, Helena Robertson, J. Robinson, G Rodriguez, Eileen Rowley, J. Scarff, J. Smith, Dorothy Somerville, Helen Spencer, Marguerite Stewart, S. Summer, J. T. Leslie, T. J. Thomson, Philippus Toit, O. Wild, Arma Williams, D. Williamson, Christine Willway.

* With distinction.

UNIVERSITY OF GLASGOW.

THE Senate of the University of Glasgow has awarded a Faulds Fellowship in the faculty of medicine, value £200 per annum for three years, to James L. Halliday, M.B. The Bruaton Memorial Prize for the year 1920, awarded to the most distinguished graduate in medicine, was divided between John Wyllie, M.A., and John William Stewart Blacklock, who were bracketed equal. The Joseph Coats Memorial Scholarship (value £85), for the encouragement of original research in pathology, was awarded to Harold L. Coulthard, M.B., Ch.B.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary Council was held on December 9th, when Sir Anthony Bowlby, President, was in the chair.

Twenty-four candidates passed the first Fellowship examination in anatomy and physiology, under the special war conditions, and 47 under the ordinary conditions.

Diplomas of Fellow were granted to the following 43 candidates found qualified at the recent examination for which there were 122 candidates:

A. L. Abel, R. M. Atkinson, H. H. Bailey, C. F. Beyers, A. H. F. Bizarro, R. St. L. Brockman, C. L. Chapman, D. G. Churcher, Hetty E. Claremont, A. J. Cokkinis, L. P. Costobadie, C. H. Crawshaw, P. P. Debono, W. M. Dickson, L. A. Dingley, H. H. Dunsmere, G. E. Kilkington, R. H. Fleming, P. K. Gilroy, F. K. Hayman, S. W. M. Jones, G. L. Keynes, E. A. Lindsay, R. J. M. Love, P. G. McEvedy, R. H. Maingot, C. D. Maitland, F. D. Marsh, H. H. Mathias, O. G. Morgan, J. E. Pearce, V. C. Pennell, R. L. Rea, N. L. M. Reader, Hilda N. Shufflebotham, T. H. Somervell, L. A. Spedding, R. F. Standage, J. B. Stanley, H. E. R. Stephens, J. W. Stretton, D. G. C. Tasker, D. Watson.

A Final Examination for the Fellowship will be held on February 15th, 1921, and following days; the written part will take place on February 11th.

The Licence in Dental Surgery was granted to thirty-two candidates found qualified at the recent examination.

Mr. E. H. Fagge was elected a member of the Court of Examiners in place of Mr. H. J. Waring, retired by rotation. Mr. Raymond Johnson was elected a member of the Court of Examiners in Dental Surgery.

Mr. F. F. Burghard was appointed representative of the College on the University of London for the period ending in May, 1923, in the vacancy occasioned by the resignation of Sir Charles Ballance. Sir Berkeley Moynihan was reappointed representative of the College on the Court of Governors of the University of Birmingham for three years from January 1st, 1921. Sir Anthony Bowlby and Sir John Bland-Sutton were appointed to represent the College on the Conjoint Board of Scientific Societies.

A bust (by Bailey) of the late Sir Richard Owen, offered through her executors by the late Mrs. Owen (his daughter-in-law), was accepted with thanks.

The following three members of Council were appointed delegates to represent the College at the centenary celebrations of the French Academy of Medicine, to be held in Paris from December 20th to 23rd, 1920: Sir d'Arcy Power, Mr. Charles Ryall, Sir John Lynn-Thomas. The delegates were requested to offer an address of congratulation which has been drawn up by the College.

In regard to the resolutions carried at the meeting of Fellows and Members, held November 28th, 1920, the following reply was adopted by the Council: "That, as the matters referred to in these resolutions were very fully considered by the Council so recently as June, as well as at previous meetings in this year, the Council see no advantage in reopening the discussion."

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following have, after examination, been admitted as Fellows of Faculty: Peter Hamilton Robertson, M.B., Ch.B., and John Noonan Meade, L.R.C.P. and S.Ed., L.R.F.P.S.G., D.P.H.

CONJOINT BOARD IN IRELAND.

AT the winter final and qualifying examinations the following candidates have been successful and have been admitted Licentiates:

I. W. Arnovitch, W. A. Bullen, W. E. Colahan, T. F. Connor, T. P. Harpur, T. A. G. Hudson, T. E. Kavanagh, P. Kelly, D. L. Kelly, H. T. Macauley, T. J. McCormack, H. O. Mackey, E. Mitchell, R. J. Ogden, Gladys C. J. O'Connor, P. J. Roddy, L. Scher, W. H. Sexton, J. W. Tighe, J. F. Webb.

The Services.

WAZIRISTAN DISPATCH.

GENERAL SIR CHARLES MONRO, Commander-in-Chief in India, in his report to the Government of India on the operations in Waziristan from November 3rd, 1919, to May 7th, 1920, refers to the heroism of the Army Bearer Corps, and in particular No. 1 Bearer Unit, No. 2 Indian Field Ambulance, and No. 42 Combined Field Ambulance. The evacuation of the sick and wounded, he says, was most efficiently performed, and in no single case throughout the operations did any delay occur in this most important service. At each stage along the Lines of Communication the wounded received all possible attention. Only the most serious cases were evacuated to India; other cases were treated locally and returned to their units. "The unique standard of comfort and efficiency which obtained in the hospitals could only have been achieved by administrative ability of the highest order and by minute attention to detail on the part of all ranks. My thanks are due to the Senior Medical Officer with the Force and to his subordinate officers for their devotion to duty and their solicitude for the sick and wounded." The dispatch concludes with an acknowledgement of the administrative ability and devotion to duty of the D.D.M.S., Colonel C. W. Profeit, and a tribute to the remarkable success of the medical service during this arduous frontier campaign.

DEATHS IN THE SERVICES.

Lieut.-Colonel Thomas Henry Pope, Madras Medical Service (retired), died at Margate on November 29th, after a short illness, aged 67. He was born on June 16th, 1853, and, educated at Edinburgh University, where he graduated M.B. and C.M. in 1877, and B.Sc. and M.D. in 1888; he took the F.R.C.S.Edin. in 1896. He entered the I.M.S. as surgeon on March 30th, 1878, became lieutenant-colonel after twenty years' service, and retired on March 1st, 1904. He began his Indian career by two years' service in the second Afghan war, 1878–80, receiving the medal. In 1885 he took civil employment in Madras, and served successively as residency surgeon of Travancore, as district medical and sanitary officer of Negapatam, and, later, of South Arcot, and as assistant physician to the Madras General Hospital. In 1894 he was appointed surgeon to the Madras Ophthalmic Hospital, and subsequently professor of ophthalmic surgery in Madras Medical College. After his retirement he held the post of ophthalmic surgeon to the Margate Education Board.

Major Paul Conolly, R.A.M.C. (retired), died suddenly on November 29th. He was educated in Dublin, and after taking the L.R.C.S.I. in 1870 and the L.R.C.P.I. in 1871, entered the army as assistant surgeon on September 30th, 1871, becoming surgeon-major on September 30th, 1883, and retiring on October 1st, 1890. After his retirement he was employed as recruiting officer at Belfast from 1902 to 1909, and was also called to the Bar at the Inner Temple. He served in the Afghan war in 1878–80, receiving the medal.

Captain Kaikhosru Hormusji Contractor, I.M.S.(T.C.), whose death was briefly mentioned in the BRITISH MEDICAL JOURNAL of November 13th, was accidentally killed by the falling of a telegraph pole at Hillah, in Mesopotamia, on July 2.th. He was educated at Bombay, and after graduating there as M.B. and B.S., took a post as medical officer in a Chinese steamship company, with which he had visited China, Japan, and Australia. When the war began his ship was taken up as a transport, and conveyed troops to France, Malta, and the Dardanelles, for which services he received the Mercantile Marine medal. On completion of his contract with the steamship company, he took a temporary commission as lieutenant in the I.M.S. on September 22nd, 1916, and was promoted to captain after a year's service. He had served in East Africa, and latterly in Mesopotamia.

Captain Mervanji Dinshaw Printer, I.M.S.(T.C.), was drowned in the Suez Canal, near Ismailia, on October 2nd. He was educated at Bombay and became L.M.S. in 1905; subsequently he studied in Dublin and Edinburgh and took the Scottish triple qualification in 1906; afterwards he went into practice at Mandvi, Bombay. He took a temporary commission as lieutenant in the I.M.S. on February 25th, 1918, and was promoted to captain after a year's service. He served in Lord Allenby's force in Palestine and Syria, and, after the French took over Beirut, was transferred to the base hospital at Kantara, Egypt, and while stationed there came to his untimely end. He was 37 years of age.

Medical News.

THE house and library of the Royal Society of Medicine will be closed from Friday, December 24th, until Tuesday, December 28th, both days inclusive.

SIR DONALD MACALISTER, President of the General Medical Council, has been elected an honorary member of the Liverpool Medical Institution.

COLONEL SIR EDWARD WORTHINGTON is leaving for India at the close of this week to join the staff of the Duke of Connaught on his journey to India in H.M.S. *Malaya*.

A MEETING of the Council of the School Medical Group of the Society of Medical Officers of Health will be held on Saturday, December 18th, at 10.30 a.m., and of the Group at 11.0 a.m., at 1, Upper Montague Street, Russell Square, London, W.C. Members of the School Medical Service who are not members of the society will be welcome as visitors.

A GENERAL meeting of the Medical Officers of Schools Association will be held to-day (Friday, December 17th), at 4.30 p.m., at 2, Savoy Hill, Victoria Embankment, W.C.2, to elect officers for 1921. Mr. R. C. Elmslie has been nominated for the office of president.

DR. ROBERT JAMIESON of Broderick, Dr. James B. Lawson of Rothesay, and Dr. Thomas Rutherford of Arran, have been appointed justices of the peace for the County of Bute.

THE London County Council has decided to insert in all licences for establishments for massage and special treatment the condition that the establishment should be carried on only for the treatment or business and in the trade name specified in the licence and at that address; that all notices and advertisements should bear the style and title specified in the licence, and no names of individual assistants should be given; that any change of name, address, or treatment, or business should be immediately notified to the Council; and that, except by the written consent of the Council, the licensee should not employ in the conduct of the establishment any person whose licence had been revoked or to whom a licence had been refused on the ground of unsuitability.

PROFESSOR WEICHSELBAUM, the discoverer of the meningococcus and author of works on histology, epidemiology, and parasitology, died at Vienna on October 22nd.

THE well known anatomist and anthropologist, Professor Carl Toldt of Vienna, died last month of pneumonia at the age of 80.

AT a recent meeting of the Italian Paediatric Society at Trieste, Professor Comba of Florence was elected president and Professors Cattaneo of Bologna and Cozzolino of Genoa members of council. The next congress will be held at Milan.

THE matinée in aid of the Royal Medical Benevolent Fund Guild, given at His Majesty's Theatre last month, has enriched the guild by the sum of over £1,000. Among those who gave their services were Miss Winifred Emery, who, with Mr. Gerald du Maurier, appeared in a one-act play, *The Stepmother*, Miss Fay Compton and Mr. Basil Rathbone, and Mr. Leon M. Lion's company. Among those present in the royal box were the Queen of Spain and Princess Christian.

THE appeal for donations to secure the unique collection of nasal anatomy formed by the late Professor Onodi of Budapest (BRITISH MEDICAL JOURNAL, November 13th, p. 755) is meeting with a satisfactory response. We may feel assured that it will remain in this country, where it will be available for all students. A considerable sum is still required to prepare, mount, and catalogue the 700 specimens. The names of the subscribers will shortly be published, and those who have not already sent their donations are urged to communicate at once with the Honorary Secretary and Treasurer, Mr. Philip Franklin, 27, Wimpole Street, W.1. The committee is anxious to publish a full and representative list. As was previously pointed out, this remarkable collection is of scientific interest and great practical utility not only to rhinologists and otologists, but equally to ophthalmologists, dental surgeons, and general surgeons.

THE management committee of the Kidderminster Infirmary, on December 8th, passed a vote of condolence with the relatives of the late Dr. S. Stretton, who did much for the institution, and was instrumental in the erection of the present building. It is intended to perpetuate his memory by calling one of the wards by his name. At the same meeting the resignation of his son, Dr. J. Lionel Stretton, the senior honorary surgeon, who has been a member of the staff for thirty-eight years, was received with great regret, and he was appointed honorary consulting surgeon with the charge of ten beds.

A COURSE of lectures and practical instruction in mental diseases for a diploma of psychological medicine will be given at the Maudsley Hospital, beginning on January 3rd, 1921, and lasting until March 18th. In the lecture courses Sir Frederick Mott will deal with the pathology of mental diseases, including brain syphilis, its symptomatology and treatment, and secondary dementia from injury, tumours, abscess, syphilitic brain disease, parenchymatous syphilis, arterio-sclerosis, arteritis, alcoholic dementia, lead encephalitis, and deficiency diseases. Eight lectures on the psychoneuroses will be given by Dr. Bernard Hart, who will discuss, among other topics, the relationships of the various schools of treatment and the classification of the psychoneuroses. Dr. F. C. Shrubsall's course of instruction on the practical aspect of mental deficiency will include lectures on mental deficiency, the methods of testing mental capacity, and the laws of mental deficiency in relation to ascertainment and treatment. Six lectures on crime and insanity will be given by Dr. W. C. Sullivan and eight lectures on the symptoms of mental disease by Dr. E. Mapother. A series of clinical demonstrations in neurology will be given partly by Dr. F. Golla, at the Hospital for Paralysis and Epilepsy, Maida Vale, and partly by Sir Frederick Mott. Dr. C. Hubert Bond will give ten lectures or demonstrations on the differential diagnosis and treatment of mental disorders and the legal relationships of insanity; certain of these demonstrations will take place at Hanwell or Claybury. The full syllabus of the course may be obtained on application to the Maudsley Hospital, Denmark Hill, S.E.5.

A COMPLETE scheme for the establishment of a school of tropical medicine and research in Parel, Bombay, has been submitted for the sanction of the Secretary of State, and it is hoped that it will be opened at an early date and afford opportunities for post-graduate instruction to students from all parts of the world. A medical college will be established in association with King Edward's Memorial Hospital in Parel, the foundation stone of which will be laid this month.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medissera, Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"DIOGENES" asks if there is in existence any evidence in support of the statement that diseased tonsils and adenoids may be caused by dental trouble.

HYPERIDROSIS.

DR. ALEX. MACLENNAN (Glasgow) writes: In reply to the query by "Beaten" in the JOURNAL of November 27th, I would say that if accompanied by constipation it is probably reflex, not toxic, and that an *x*-ray examination of the intestinal tract should be made with special reference to the colon. In one similar case a "loop" of the descending colon, accompanied by hyperhidrosis of the hands and obstinate constipation, was cured by excision of this loop.

DYSIDROSIS.

"M. C. N." writes: I have a patient, aged 20, who, although in good health in every other respect, suffers from offensive perspiration, under her arms principally. I should be glad of suggestions for treatment. The only thing I find does any good is thyroid tablets (2½ grains), and this seems to lose its efficiency.

INCOME TAX.

"J. C. C." inquires as to the assessment of income, £800 from practice, £200 from dividends, and "depreciation of investments £1,000 during year."

*** The £200 pays tax at 6s., the £800 is subject to allowance of one-tenth for earned income and the usual personal and family allowances; of the balance £225 is chargeable at 3s. and the remainder at 6s. No deduction can be claimed in respect of depreciation of investments, as the loss was not incurred in our correspondent's profession; it might be otherwise if he were a professional dealer in stocks and shares.

"T. M. G.," who is retiring from his firm on December 31st, 1920, asks what is the position with regard to payments which the practice may make to him after that date.

*** In our view he is liable to pay tax for the current financial year on three-quarters of the amount on which he would have paid if he had not retired, and that terminates his liabilities in respect of the practice. Apparently the firm has paid income tax on a "cash basis," but—as has been explained on previous occasions—this is a basis of calculation only, and the payment of tax for any one year has discharged the liability to tax for the earnings *of that year*. Consequently our correspondent must be regarded as having paid income tax on his earnings for, say, 1919, and any fee relating to 1919 and received by him subsequent to his retirement must not be taxed again.

"L. M." inquires whether his army emoluments can be averaged with his earnings from his restarted private practice.

*** No; the two incomes fall into different categories of the Income Tax Acts and cannot be averaged together. "L. M." says that his practice was closed down entirely, as he had no partner, only a part-time secretary for correspondence, etc. If this implies that during that time his practice was being kept in being, as, for instance, if the work was being done by his medical colleagues on part-sharing terms, then we consider that he is entitled to average the income derived by him from the practice over the past three years and take the resulting figure as the basis of his liability for this year.

"J. I. S." asks for advice as to the extent to which the purchase of professional books and periodicals is a deductible expense for income tax purposes.

*** To the extent to which that expenditure is reasonably necessary to *maintain* the practitioner's knowledge at its existing level of efficiency, following, as seems proper, the analogy of a manufacturer incurring expense from time to time to maintain his machinery in its normal condition. This rule would exclude, for example, the original cost of a medical library or the purchase of special books on a branch of medical science in which the practitioner desires to extend his knowledge, but, in our opinion, it would not exclude the expense of keeping a medical library up to date by the purchase of new editions or periodicals.

"H. M." asks for advice in the following circumstances: A. and B. were in partnership. A. held various part-time public appointments—M.O.H., etc.—but all receipts were pooled for assessment under Schedule D. A. has now been appointed whole-time M.O.H. and terminated his connexion with the practice. The assessor contends that B. must now be assessed on the average earnings of the practice including those from the public appointments.

*** We do not agree, and for the following reasons:

(*a*) Because the pooling of public appointment receipts is a mode of procedure adopted for the convenience of the taxpayer and the revenue, but without legal justification. Now that the public appointment has been divorced from the general practice there is no reason either in law or common sense why the assessment on the latter should include any results of the appointments. (*b*) Apart from the above consideration, even if the two incomes are legally assessable together, they are now separable, the public appointment work being in some sort a branch taken over by A.; and (*c*) if the figures for the past three years are not separated, it is clear that both A. and B. are paying tax on one source of income.

It should be borne in mind that it is not the gross receipts from the appointments that require elimination, but that amount less a reasonable sum for the expenses applicable thereto.

Renewal of Motor Cars.

A CORRESPONDENT raises again the question as to the income tax allowance due to him for replacing his motor car. In this instance the original car was apparently secondhand and has been replaced by a new car of another make.

*** Our correspondent can deduct the difference between what he paid for the original car and the cost as at the date of sale of a car of similar make and condition to the one he sold. He cannot deduct the cost—or at least the whole cost—of a new car, as that outlay represented an improvement of his professional equipment.

LETTERS, NOTES, ETC.

A DISCLAIMER.

WE have received a letter from Dr. Francis H. Edwards (Medical Superintendent, Camberwell House, S.E.5) in the course of which he writes: My attention has been called to a highly eulogistic paragraph in the personal column of the advertisements in an issue of the *Times* of recent date. I am quite without information as to the origin of this unfortunate effusion, which, however, is an example of how much more easily one can be injured by one's friends than by one's enemies. I shall be much obliged if you will note my entire repudiation of any knowledge in the matter.

DISAPPEARANCE OF RADIAL PULSES DURING DEEP INSPIRATION.

DR. JAMES RITCHIE (Slateford, Midlothian, formerly of Edinburgh) writes: In the BRITISH MEDICAL JOURNAL of December 11th, 1920, p. 890, Dr. Edgecombe (Harrogate) records a case of disappearance of the radial pulse during deep inspiration. About thirty-five years ago, when examining a middle-aged gentleman, I found very marked intermissions of the right radial pulse; closer examination revealed the fact that the intermissions occurred only at the close of inspiration, and also that the pulse on the left side was quite regular; further, that when the right elbow was supported the right radial pulse became regular. Examination of the neck revealed several deep cicatrices, and also some thickening of the connective tissue behind the right clavicle. The patient then stated that when he was a young man he suffered for some years suppuration in that region. Some time afterwards I had the pleasure of meeting Professor (afterwards Sir) David Ferrier at dinner, when conversation happened to touch on irregularities of the pulse. The above case was described to him; he straightway demonstrated that he could at will extinguish the radial pulse by depressing the shoulder. The first case had a pathological contributing cause; in Sir David Ferrier's case there was none.

DR. CAREY COOMBS (Clifton, Bristol) writes: A short note on this subject appeared in the *Berliner klinische Wochenschrift* for August 15th, 1910, by Dr. Georg Riebold. Here, as in Dr. Edgecombe's case, the pulse failure was due to compression of the subclavian artery between the clavicle and the first rib. I have seen the same phenomenon, more than once so far as my memory serves me, in the course of some investigations which I made into the causation of the loud systolic murmur often heard during inspiration, and also when the arms are raised, beneath the outer half of the clavicle. I found it impossible to associate this murmur with any morbid condition, and came to the conclusion that it also was due to pressure on the subclavian artery.

DR. ERNEST KINGSCOTE (London, W.) writes: To those of us who have served as police surgeons the disappearance of the radial pulse is quite familiar. Malingerers effect it by taking a deep breath and holding it, thus nipping the subclavian artery between the first rib and the clavicle. Holding the breath after deep inspiration also tends to slow the heart's action in tachycardia.

THE "JOURNAL."

IN an article last week on early medical journals we said that our forerunner, the *Provincial Medical Journal*, which was started in 1840, soon changed its name to the *Provincial Medical and Surgical Journal*, and that, following the change of title of the Association to that of the British Medical Association in 1856, the Journal adopted its present title. The Librarian reminds us that in 1853 and for the three following years the Journal was styled the *Association Medical Journal*. There were thus four phases in the evolution of the name. At some unknown date an unofficial phase occurred—the familiar contraction into the three initial letters of the *British Medical Journal*. This short title has long been current "on lips of living men," and will no doubt remain in common use, however disagreeably it may sound in the ears of those who deplore the modern habit of abbreviation.

A DUTCH MEDICAL CALENDAR.

THIS time last year we mentioned the issue for the Netherlands Medical Association of a medical wall calendar containing a series of reproductions of pictures of medical subjects. Encouraged by the interest shown by members of the profession in this country and America, the publisher, Mr. J. Philip Kruseman, 87, Prinsegracht, the Hague, Holland, has brought out an English edition of his medical calendar for this year. The pictures have been selected by Dr. J. G. de Lint of Gorinchem, with the exception of a number illustrating dentistry chosen by Dr. G. H. Bisseling of the Hague. Among the latter is the reproduction of an etching by Lucas van Leyden, said to be the first showing an operation on the teeth. Among others reproduced are a picture showing extraction of a tooth with the fingers, and a portrait of Fauchard, which served as a frontispiece to his book *Le Chirurgien Dentiste*, published in Paris in 1728. Not all the pictures chosen are Dutch; there is a reproduction of Titian's Doctor of Parma, a portrait of Edward Jenner after an engraving, and another of Dr. Joannes Wier of Arnhem, who wrote against witch hunting. Several of the best pictures reproduced are of water doctors, one of them by Gerard Dou. The title-page of a book on pharmacy gives a very vivid picture of an apothecary's shop in 1657; finally we may notice an engraving showing the capping of four candidates at the centenary celebrations of the University of Utrecht. The calendar can be obtained from the publisher at the address given, price 6s., post free.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 37, 38, 40, 41, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 39 and 40.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

NEW SCALE.

The following new scale of charges for advertisements will come into force on January 1st, 1921:

	£	s.	d.
Six lines and under	0	9	0
Each additional line...	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste-restante* letters addressed either in initials or numbers.